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PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

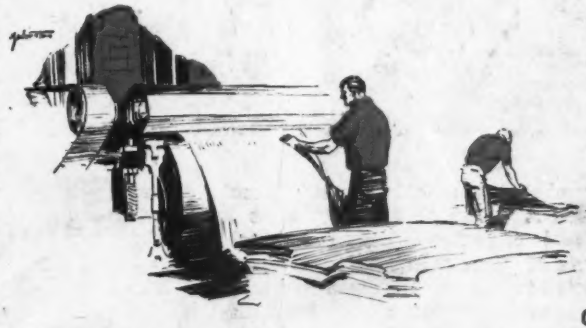
Vol. LXXXV, No. 8 AUGUST 25, 1927 Per annum $4.00 Per Copy 10 Cents

Where every day is ironing day

The smooth, flat surface that you see on a Graton & Knight belt is not for beauty's sake alone. It is one of the most important factors in belting efficiency.

Pictured here is a "setting out" machine. It has about the same purpose as a laundry mangle or the ironing machines that are in so many homes now. Graton & Knight belting hides are brought to these machines slightly moist and with the surfaces wrinkled by repeated washings.

Now they must be smoothed out to remove every surface irregularity. First they go through the big setting out machines, which smooth them like an ironer. Then they are laid out in piles for a time. When they have



tempered according to the exact Graton & Knight formula, skilled workers finish the process by hand.

The purpose of all this is to give the belting a surface texture or grain that will take hold of the pulleys and hang onto them. In this step you find the characteristic care with which every process in the manufacture of Graton & Knight belting is controlled, to give you a belt that will do more work and stand the wear and tear of continual use.

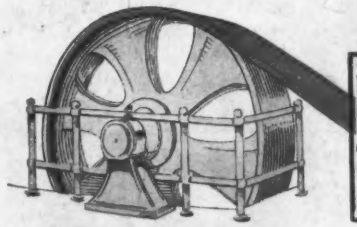
That's why Graton & Knight belts last longer.

Graton & Knight Company
Worcester, Mass.
Branch offices throughout the World

GRATON & KNIGHT
Standardized
LEATHER BELTING LASTS LONGER

The "STANDARDIZED BELTING MANUAL"

contains 170 pages of useful information about belting, how to use it, take care of it, and make it deliver the most for your money. Send for a copy.



GRATON & KNIGHT COMPANY,
Worcester, Mass. 101-E
Send me a copy of *"Standardized Belting Manual."*
Name .....
Company .....
Place .....
Prices, quality for quality, 5 to 10% lower than the field.

GRATON & KNIGHT

A corner of our extensive metallurgical laboratory, famous for its contributions to the art of making alloy steels.

America's Finest Laboratory Produced This Stainless Iron

IT is only natural that America's Finest Laboratory should have produced Agathon Enduro Stainless Iron, which refuses to rust, scale or corrode. This new metal is ideal for those metal parts of paper mill machinery in contact with liquids or subjected to excessive wear and abrasion. One of its main advantages for such use is the fact that it is not a coated material, but is the same all the way through. Thus it will resist indefinitely, rust, scaling or corrosion.

Agathon Enduro Stainless Iron is easily worked—it can be machined, forged or drawn—and yet possesses a hardness that resists wear and abrasion.

Our metallurgists will gladly assist you in the application of this remarkable metal to your product.

AGATHON ENDURO STAINLESS

Agathon Enduro Stainless can be—Spun, Forged, Welded, Riveted, Machined, Cold Worked.

Agathon Enduro Stainless resists—Abrasion, Alkali Solutions, Moist or Sea Air, Superheated Steam, Fruit and Vegetable Acids, and will not scale at High Temperatures.

Central Alloy Steel Corporation, Massillon, Ohio

World's Largest and Most Highly Specialized Alloy Steel Producers

Makers of Agathon Alloy Steels

Cleveland · Syracuse · San Francisco · Detroit · Philadelphia · Chicago · Los Angeles · New York · Tulsa · St. Louis · Seattle · Cincinnati

AGATHON ENDURO STAINLESS IRON

Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-SIXTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa.
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"Unbreakable"

Look what happens to a KONDU BOX from applying 250 pounds pressure per square inch.

It bends but does not break. Why? Because it is made of certified malleable iron which is known for its toughness and bending qualities.

This means less loss when the line becomes damaged and greater salvage value. Try this test on a cast iron fitting and see what happens.

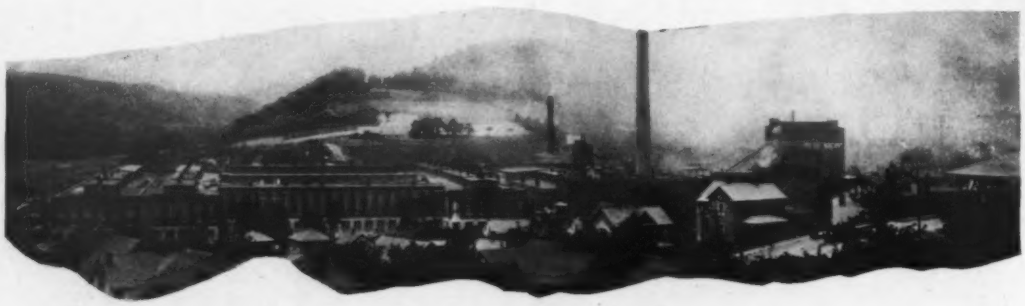
Erie Malleable Iron Company

Kondu Division **Erie, Pa.**

KONDU-BOX

THE THREADLESS CONDUIT FITTING

REGISTERED U. S. PATENT OFFICE & CANADA



The West Virginia Pulp and Paper Company at Covington, Virginia, are obtaining highest steam output at minimum cost from two powdered coal fired 825 H. P. boilers, equipped with two LJUNGSTROM AIR PREHEATERS.

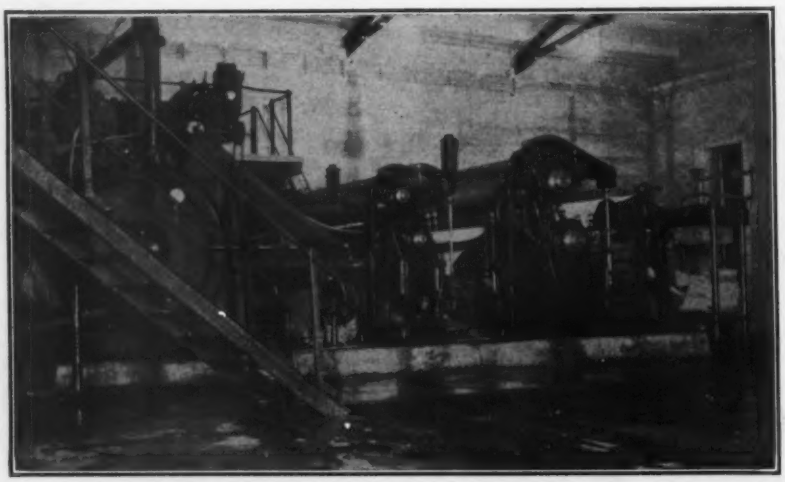
Lower Steam Cost Is Available To Every Plant Owner

Complete engineering data, recommendations, estimates of savings, and guarantees, will be gladly submitted upon request.

THE AIR PREHEATER CORPORATION

25 Broadway, New York

Canadian Licensees—Lammers & Maase Ltd., 1075 Beaver Hall Hill, Montreal



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Wet Machines & Drying Machines

100 tons dry Sulphite or Sulphate or 50 tons Ground Wood per 24 hours. Over fifty per-cent AIR-DRY.

Enormous savings in labour, felts, wires, general upkeep, floor space, steam, power, fibre, etc. Full information on request.

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M. DIR. G. L. M. HELLSTROM

Sole Representative in U.S.A.: G. D. Jenssen Company, 200 Fifth Ave., New York City

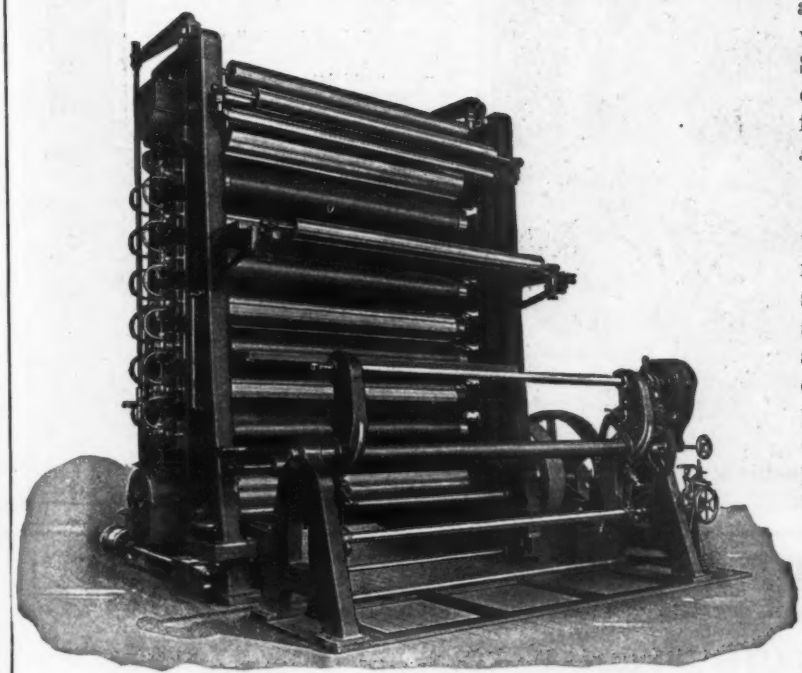
A complete line of equipment for use in the manufacture of:

PAPER - PULP - CARDBOARD

Embracing the latest Scandinavian improvements made by works in CANADA, U. S. A., NORWAY & SWEDEN

PERKINS HOLYOKE

Web Super-Calenders *for* Super Service



PERKINS NINE ROLL WEB SUPER-CALENDER
With
Direct Connected Single Motor Drive Employing Dual Frequency Control

Close association with the paper makers of America more than a half a century has been an important factor in the development of Perkins Web Super-Calenders. This experience has produced machinery for finishing paper in the *most satisfactory way it can be done.*

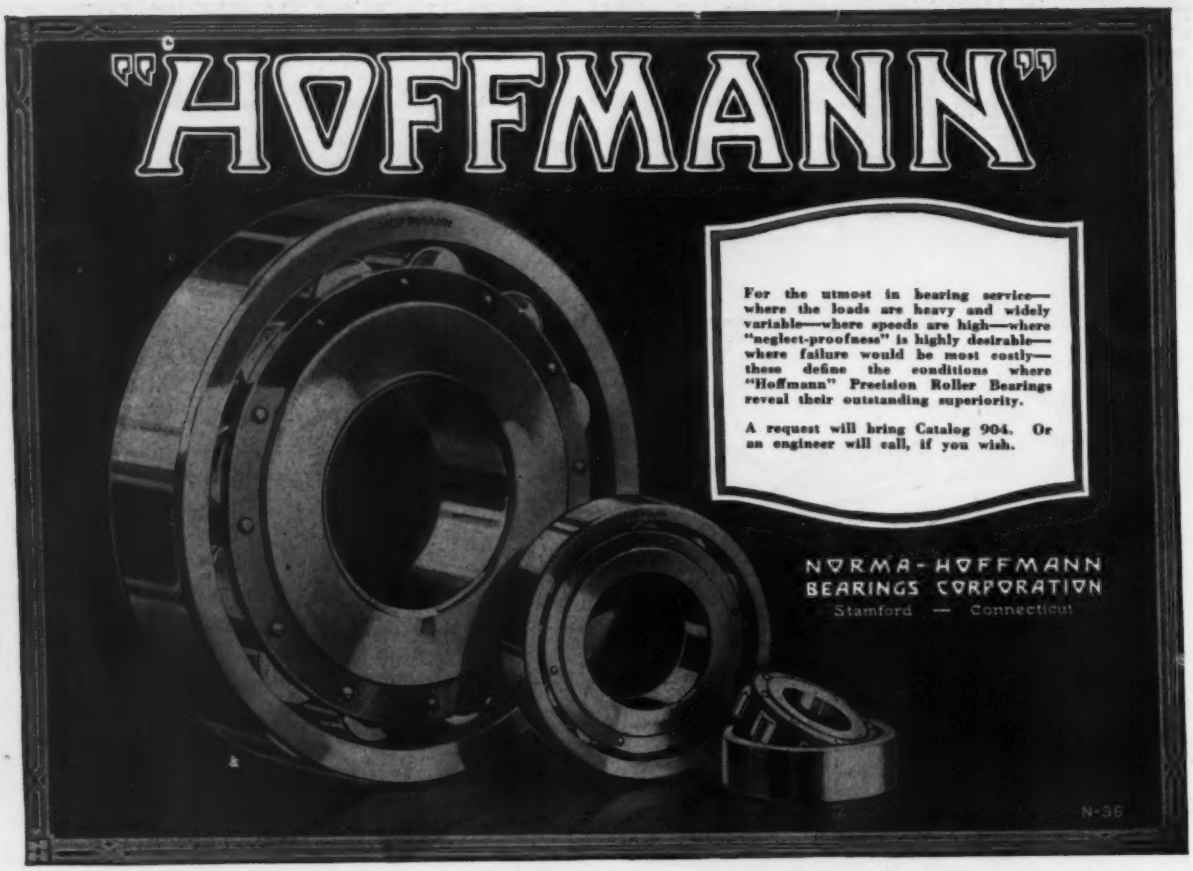
Perkins machines give you that r u g g e d n e s s and design necessary for modern operating speeds and conditions. Long service is built into them through and through. Engineering and construction have been accomplished for high efficiency in production, ease of operation, low power consumption and minimum up-keep.

Paper makers have long since realized that *no Calender can be better than the Rolls in it.* Perkins Rolls are so well established through the years of successful service that these machines are given the most substantial recognition of the industry at large.

B. F. Perkins & Son, Inc., Holyoke, Mass.

TRADE MARK REG. U.S. PAT. OFF.

COTTON ROLLS - PAPER ROLLS - EMBOSSING ROLLS - CHILLED IRON ROLLS - GRANITE PRESS ROLLS - WEB SUPERCALENDERS - GLASSINE SUPERCALENDERS - FRICTION CALENDERS EMBOSSING CALENDERS - SHEET CALENDERS - PLATERS - MULLEN PAPER TESTERS TENSILE TESTERS - VENTILATING FANS - RAG CUTTERS - STOCK CUTTERS - PAPER DAMPENERS BLEACH EJECTORS


"HOFFMANN"
For the utmost in bearing service—where the loads are heavy and widely variable—where speeds are high—where "neglect-proofness" is highly desirable—where failure would be most costly—these define the conditions where "Hoffmann" Precision Roller Bearings reveal their outstanding superiority.
A request will bring Catalog 904. Or an engineer will call, if you wish.
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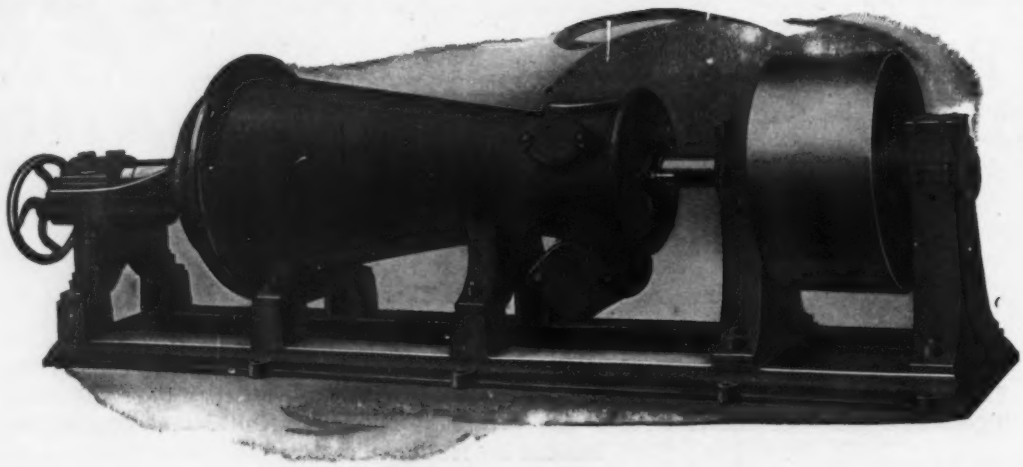
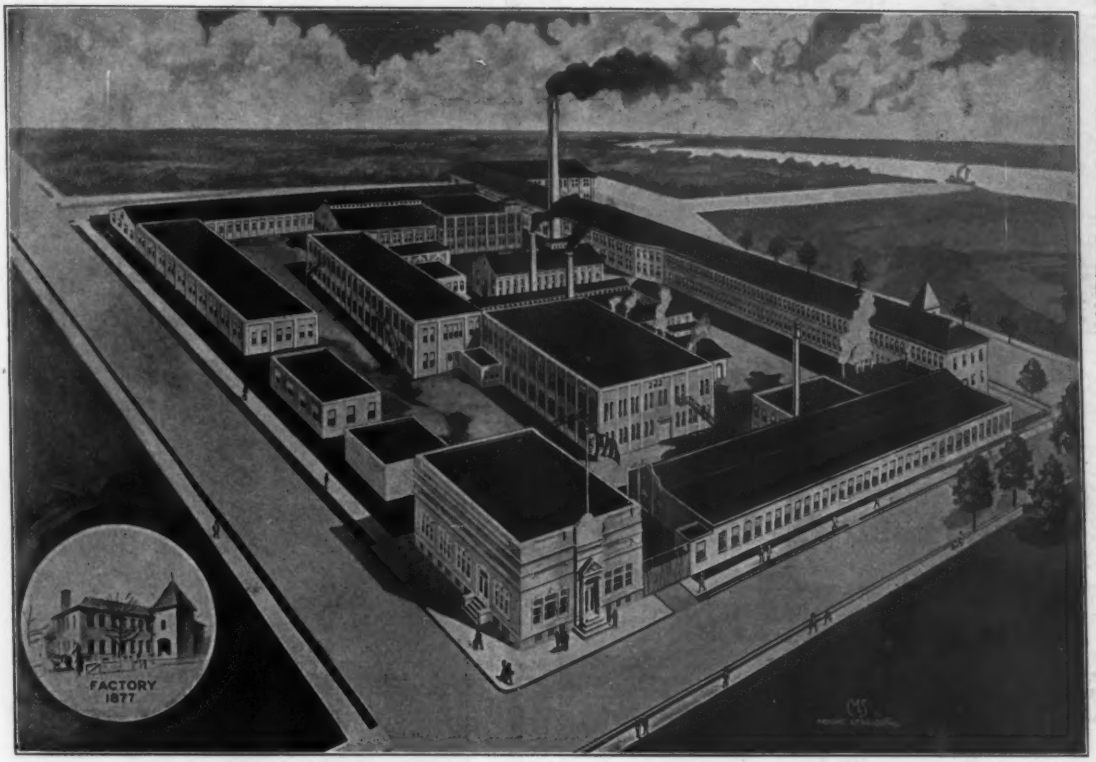


NO. 60 JORDAN ENGINE



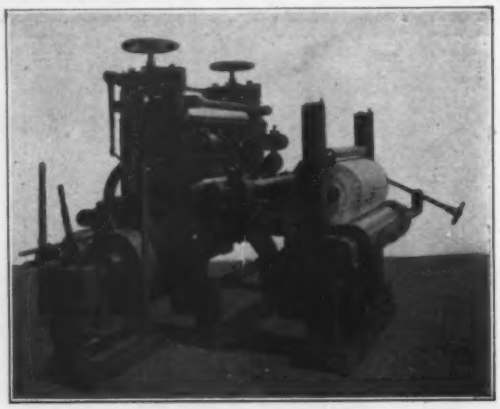
This Illustration Visualizes Fifty Years of Progressive Growth and Unsurpassed Achievements in the Production of

EASTWOOD

FOURDRINIER-CYLINDER-WASHER

WIRES

EASTWOOD WIRE MANUFACTURING CO., BELLEVILLE N.J. U.S.A.



600 feet per minute
is the operating speed of this

WALDRON
Embossing Machine

Even this speed is not the limit of this modern Waldron Embosser. Higher speed can be attained if the goods can stand sufficient tension. Completely solves the problem of getting goods to and away from machine fast enough.

Equipment includes large diameter steel and paper adjustable rolls, quick lifting rig, slitters and trimmers, automatic stop and double drum winder that produces hard bundle with straight sides.

Undoubtedly the latest Heavy-Duty Embosser on the market today.

Embossing Machines For All Purposes

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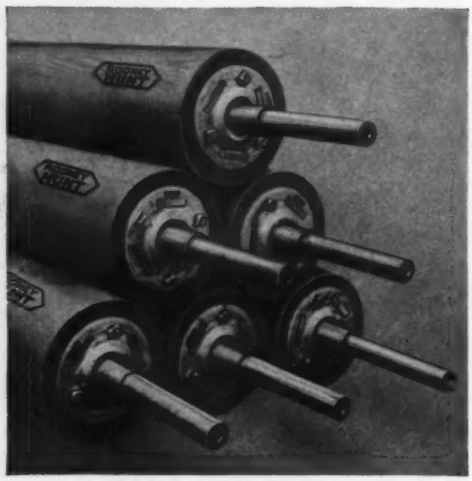
"Shaf-tite" Felt Rolls

Low cost
Unusual strength
Quick shipments



"Shaf-tite" Wood Rolls are built in sizes—3½ to 12 inches diam.

There is no better Wood Roll for

Carrying Wet or Dry Felts

write, wire, or phone

ROLL DEPARTMENT
RODNEY HUNT MACHINE CO.
63 MAPLE ST., ORANGE, MASS.

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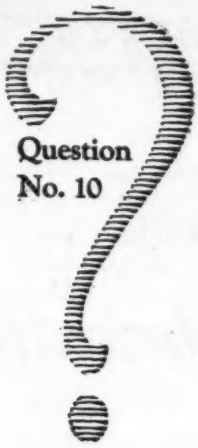


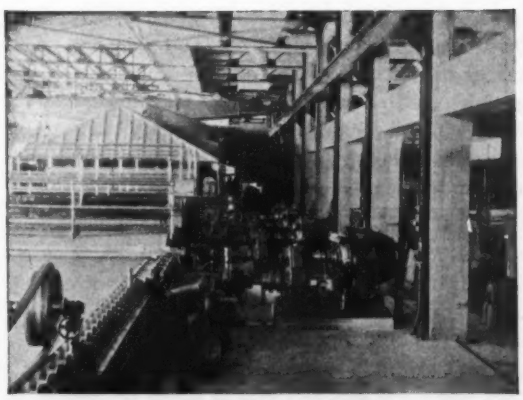
How does Sectional Drive Save Floor Space?

About
SECTIONAL
Paper Machine
DRIVE

INSTEAD of the multiplicity of gears, shafts, clutches, and pulleys used with mechanical drive, Westinghouse sectional drive consists of one compact motor gear unit for each section.

No space is required in the basement. If there is a basement, it can be used for beaters or storage. On the main floor, Westinghouse sectional drive never takes more space than mechanical drive; it usually takes much less—and the space around the drive is free and clean. If floor space is at a premium, right-angled gear units will reduce still more the floor space required.

The saving in floor space is but one of the many economic advantages of Westinghouse sectional drive. Watch for others in future advertisements of this series—or better yet, write our district office near you the questions in *your* mind.



Westinghouse Electric & Manufacturing Company
East Pittsburgh Pennsylvania
Sales Offices in All Principal Cities of the United States and Foreign Countries

WESTINGHOUSE ELECTRIC

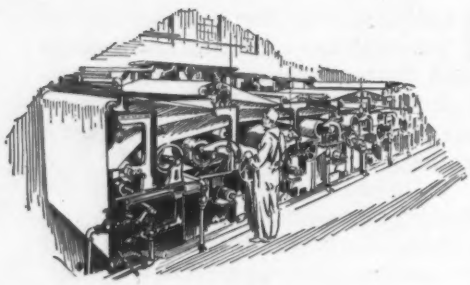
Westinghouse

X94036

SHORT STORIES OF EXPERIENCES IN IMPORTANT PAPER MILLS

How this mill easily proved . . .

The Benefits of Improved Lubrication



✲ Chapter I ✲

The opportunity . . .

In August 1925 the Vacuum Oil Company was given the opportunity of analyzing the operating and lubricating conditions in a large Western paper mill.

Our Engineering staff cooperated with the engineer of the mill. A thorough study of the equipment in operation was made. After the study was completed we recommended the use of certain lubricants which had proved effective in many other mills. These recommendations were carefully gone over by the operating officials. They were accepted. Gargoyle lubricants were installed.

✲ Chapter II ✲

5 *improvements in* 4 *months*

After the Gargoyle lubricants had been in service four months a check-up was made of improved results. Five improvements were outstanding—as follows:

1. On News Jordan: With oil formerly used a frictional temperature of 88° F. had been noted. Extra hand-oiling was frequently resorted to. 2 hours and 20 minutes after Gargoyle D. T. E. Oil Extra Heavy was substituted, a reduction in frictional temperature of 40° F. was reported. No hand-oiling was necessary.

2. On Liner Jordan: A temperature test taken with oil previously in use had shown:—

Temperature of thrust bearing	240° F.
Temperature of room	74° F.
Frictional temperature	166° F.

A temperature test was later taken after Gargoyle D. T. E. Oil Extra Heavy had been in use 2 hours and 10 minutes:—

Temperature of thrust bearing	140° F.
Temperature of room	76° F.
Frictional temperature	64° F.

Reduction in frictional temperature 102° F.

3. In No. 1 Paper Machine: Lubricant formerly used did not stay put on water-washed bearings. In one instance the journal of a press roll contained no oil whatever. Gargoyle Voco Engine Oil No. 1 was installed. Inspection showed this oil maintained a rich lubricating film on all journal and bearing surfaces subjected to water-wash. The bearing which had shown no film on the journal surface with oil formerly used was completely lubricated with the same rate of feed by the Gargoyle lubricant.

4. In Dryer Bearings on No. 1 Paper Machine: With oil formerly used, oil reservoirs in many instances contained foreign matter—broken-down oil and paper dust. Ring oilers could not be depended upon to carry oil to the journals. When high temperatures occurred, due to induced heat, the oil did not maintain a complete film. Excessive friction and bearing wear resulted. At the end of the week a distinct drag was noticeable, causing strains on the paper. Gargoyle Crank

Case Oil was installed in these dryer bearings. The former difficulties were overcome.

5. On Calender Bearings: Three stacks totaled 25 calender rolls. Very heavy pressures and high temperatures existed. With oil formerly used many bearings ran hot. Gargoyle D. T. E. Oil Extra Heavy was installed to form and maintain the necessary oil film. Immediately the operating men noticed a new smoothness of operation, plus lower bearing temperatures.

⋆ Chapter III ⋆

Continued improvements . . .

A month later we again checked up the performance records of Gargoyle lubricants in the mill.

Observations:—

A.—Formerly the top press roll and top wire press roll bearing and journals on paper machine No. 1 ran hot. With Gargoyle Voco Engine Oil No. 1 in use, bearings were cool to the touch. In addition, the wear of Fourdrinier wires due to sticking rolls was much reduced.

B.—Smoother operation of wet end of paper machine was noted.

C.—With oil previously used, calender-stack bearings ran hot, necessitating excessive oil consumption. With Gargoyle D. T. E. Oil Extra Heavy in service, all bearings, except those employing steam heat, remained at about room temperature.

D.—A very interesting demonstration of the difference between "any good oil" and "correct lubrication" was found in a triplex, vertical belt-driven stuff pump. The pump had been lubricated with a certain oil at the rate of 2 quarts every 24 hours of operation. Gargoyle D. T. E. Oil Extra Heavy was substituted and the same quantity of lubricant secured 144 hours of operation.

⋆ Chapter IV ⋆

A summary of benefits . . .

The following improvements are credited by this paper mill to correct lubrication.

1. Labor saving—less frequent oilings.
2. Cleanliness—reduced fire hazard.
3. Economy in oil consumption.
4. Protection of bearing surfaces against injurious friction.
5. Continuity of machine operation.
6. More regular speeds.
7. Reduced friction drag.
8. Reduced power losses.
9. Reduced repairs.

A good example to follow . . .

SIMILAR benefits in greater or lesser degree may be expected by *any* paper mill which intelligently applies the principles of correct lubrication. 17 out of 18 builders of pulp and paper mill equipment recommend the Vacuum Oil Company's Gargoyle Lubricating Oils. These high-grade, uniform oils, together with our experienced knowledge and cooperation, are at your disposal.

NOTE: We will gladly send you without charge our authoritative treatises: "Pulp and Paper Mill Lubrication," and "Bottle Oilers." Write for your copies.

Vacuum Oil Company

Headquarters: 61 BROADWAY, NEW YORK

Branches and distributing warehouses throughout the country

Lubricating Oils

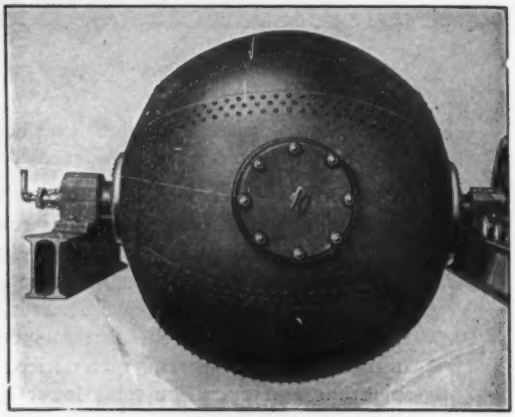
A grade for each type of service

Faster, Cleaner, Bleaching with the New Biggs Rotary

THE combination of cold bleaching under pressure and adequate mixing provided by the New Biggs Rotary Bleaching Engine handles pulp in a surprisingly effective manner.

With this improved engine, chemical and power requirements are both less—densities much higher—the time and labor factor vastly reduced.

Biggs Bleaching Boilers are also ideal for cooking and bleaching low grade stock. The Rotary Boiler Book gives full details on each. Write for your copy today.



The New Biggs Rotary Bleaching Engine
(Patents Pending)

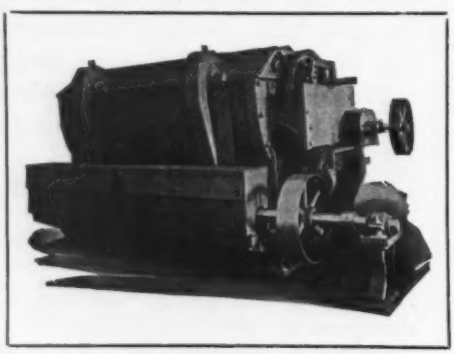
THE BIGGS BOILER WORKS COMPANY
Chicago Office: 35 South Dearborn Street
Eastern Sales Office: 300 Madison Avenue, New York City
General Offices and Works: Seneca Place and Case Avenue, Akron, O.

The Biggs Boiler Works Co. Akron Ohio

Trade Mark Registered

GLOBE and CYLINDER
ROTARY BLEACHING BOILERS
for Years of Dependable Cooking and Bleaching

1885



"MOORE & WHITE" ROTARY SCREEN

"Moore & White" Screens produce quality paper whether used on Tissues, Kraft, Roofing Manilas or Book Paper. Lumps and slime spots are eliminated. Breaks on paper are thus prevented and continuous operation is assured.

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CLEANLINESS
ECONOMY

THE MOORE & WHITE CO.
PHILADELPHIA, U. S. A.

CATALOG ON REQUEST

1927

33

Mills answer "Here" with Vertical Dryer Systems

12 *of them with more than one installation*

1915	Gardner & Harvey Co., Middletown, Ohio .....Paperboard	1919	Beveridge Paper Co., Indianapolis, Ind. .....Paperboard	1924	H. F. Watson Co., Erie, Pa. .....Felt	1925	Franklin Board & Paper Co., Franklin, Ohio.....Paperboard
1915	Chesapeake Corp., West Point, Va. .....Paperboard	1919	Cincinnati Paperboard Co., Crescentville, Ohio.....Paperboard	1924	North Star Strawboard Mills, Quincy, Ill.....Strawboard	1925	Cincinnati Paperboard Co., Lockland, Ohio.....Paperboard
1915	Lawrence Mfg. Co., Lawrence, Kansas .....Paperboard	1919	Port Huron Sulphite & Paper Co., Port Huron, Mich...Pulp	1924	U. S. Gypsum, Gypsum, Ohio .....Paperboard	1925	Waldorf Paper Product Co., St. Paul, Minn.....Paperboard
1915	National Folding Box, New Haven, Conn.....Paperboard	1919	National Folding Box, New Haven, Conn.....Paperboard	1924	Beckett Paper Co., Hamilton, Ohio .....Rag Cover	1926	Ranier Pulp & Paper Co., Shelton, Wash.....Pulp
1916	Mattagami Pulp & Paper Co., Smooth Rock Falls, Ont...Pulp	1920	Consolidated Paper Co., Monroe, Mich.....Paperboard	1924	Gardner & Harvey Co., Middletown, Ohio.....Paperboard	1926	Michigan Carton Co., Battle Creek, Mich.....Paperboard
1916	Container Corp., Chicago, Ill. .....Paperboard	1920	MacSim Bar Paper Co., Otsego, Mich. .....Paperboard	1924	Gardner & Harvey Co., Middletown, Ohio.....Paperboard	1926	Longview Fibre Co., Longview, Wash. .....Kraft Board
1916	Spanish River Pulp & Paper Co., Sault Ste. Marie, Ont. .....Pulp	1920	Richardson Co., Lockland, Ohio .....Paperboard	1925	Champion Coated Paper Co., Hamilton, Ohio.....Paperboard	1926	Auglaize Box Board Co., St. Mary's, Ohio.....Paperboard
1916	Beveridge Paper Co., Indianapolis, Ind. .....Paperboard	1921	Thames Board Mills, Ltd., Purfleet, Essex, Eng.....Paperboard	1925	Consolidated Paper Co., Monroe, Mich. .....Paperboard	1927	Ohio Boxboard Co., Rittman, Ohio .....Paperboard
1917	Consolidated Paper Co., Monroe, Mich. .....Paperboard	1921	American Coating Mills, Elkhart, Ind.....Paperboard	1925	Beveridge No. 2 Mach., Indianapolis, Ind. .....Paperboard	1927	Natl. Paper Products Co., Port Townsend, Wash...Kraft Board
1917	Port Huron Sulphite & Paper Co., Port Huron, Mich....Pulp	1923	Richardson Co., Lockland, Ohio .....Paperboard	1925	Mattagami Pulp & Paper Co., Smooth Rock Falls, Ont...Pulp	1927	Gray's Harbor Pulp & Paper Co., Gray's Harbor, Wash.Pulp
1917	Japanese Paper Industries, Tokyo, Japan.....Paperboard	1923	United Paperboard Co., Peoria, Ill. ..... .009 Straw	1925	United Paperboard Co., Peoria, Ill. ..... .009 Straw	1927	Fort Wayne Corrugated Paper Co., Hartford City, Ind..... .....Paperboard
1919	Midlakes Paper Co., St. Josephs, Mich. .....Paperboard	1924	Richardson Co., Lockland, Ohio .....Paperboard	1925	Michigan Carton Co., Battle Creek, Mich.....Paperboard	1927	Beckett Paper Company, Hamilton, Ohio.....Rag Cover

There's a reason. Ask these mills. They will tell you of savings made, of better, more uniform drying, of decreased coal consumption, lessened floor space, and of the increased production that helps to make the General Manager's job an easy one. It will pay *you* to get next—to let us tell you the complete story of Vertical Dryer Systems.

THE BLACK-CLAWSON COMPANY

HAMILTON, OHIO

Export Offices: 15 Park Row, New York City

Builders of highest quality pulp and paper mill machinery. Patentees and sole builders of Vertical Dryers and Champion Fourdriniers.

BLACK-CLAWSON

VERTICAL DRYERS

Built with Machine-Tool Accuracy

Uncle Jake says—

"The ladder of life is full of splinters, but they always prick the hardest when we are sliding down."

Most of the splinters we encounter in business are caused from rubbing the wrong way of the grain.

When you use

KVP BOND PAPER

you are rubbing the right way of the grain. The white clean sheet gives a very pleasing touch to your correspondence, and in this way brings back to your counter satisfied customers, which proves that in the long run appearances count for much.

KALAMAZOO VEGETABLE PARCHMENT CO. KALAMAZOO, MICH.

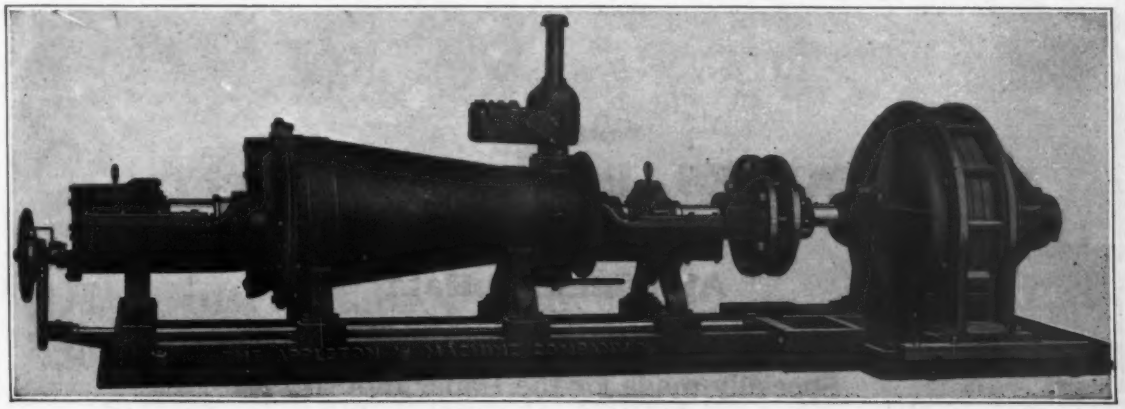
FELT STRETCHING
HAS BEEN DEFINITELY CONQUERED
TENAX FELTS
WILL NOT AND CANNOT STRETCH

TENAX

THE STRONGEST AND MOST DURABLE *FELT* MADE IN THE WORLD.

WE STAKE OUR REPUTATION ON *TENAX FELTS* AND TO ALL WHO ARE NOT USING THIS NEW FELT, WE ADVISE A TRIAL.

LOCKPORT FELT CO.
NEWFANE, N. Y.



The Ball Bearing Type Appleton Jordan Engine

Are You Getting These 5 Improvements in Jordan Performance?

1—5 to 10 percent increased production. 2—Uniform quality stock. 3—Life of Jordan knives increased 15 to 30 percent. 4—A definite power saving. 5—Lower maintenance costs - - - -

You have them with the Ball Bearing Type Appleton Jordan Engine

THE plug-shaft turns easily on the bearings, reducing power consumption. The plug remains permanently centered in the shell allowing for finer adjustment and control. The clearance between the knives of the shell and those of the plug is uniform all around the circumference. The knives wear uniformly, all of the stock receives the same refinement and being worked around the entire circumference passes through the Jordan more quickly. The bearings require no attention except periodical lubrication and inspection.

The Ball Bearing Type Appleton Jordan Engine does give more efficient Jordan service. It does give a positive refinement to all of the stock. It does help to make better paper.

A folder explaining why the Ball Bearing Type Appleton Jordan gives improved Jordan performance will be sent on request.

THE APPLETON MACHINE COMPANY

Appleton, Wisconsin

Established 1819

CHARLES LENNIG & CO., Inc.

Aluminum Sulfate

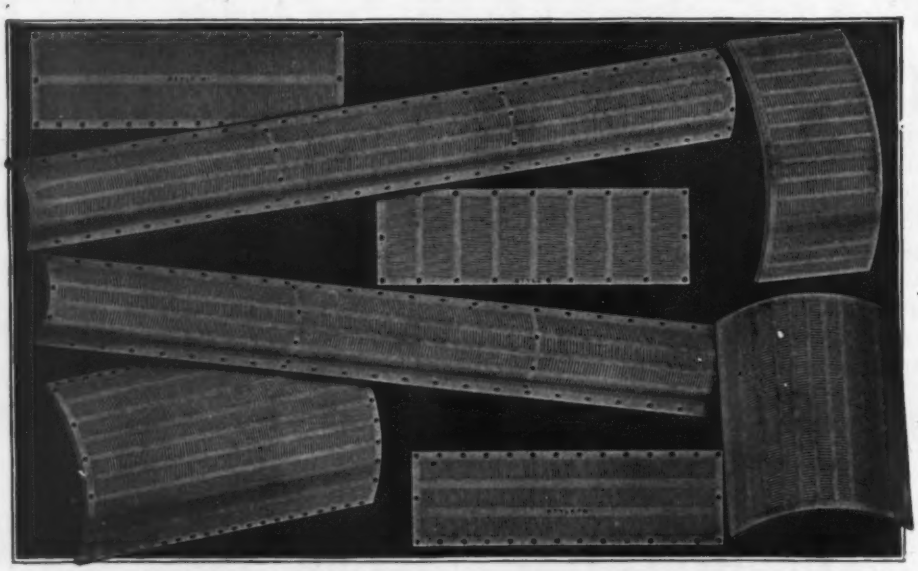
Commercial and Iron Free

Specially made for the Paper Industry

Office:
222 West Washington Square, Phila., Pa.

Works:
Bridesburg, Philadelphia, Pa.

WILLIAM A. HARDY & SONS CO.



FITCHBURG, MASSACHUSETTS, U. S. A.

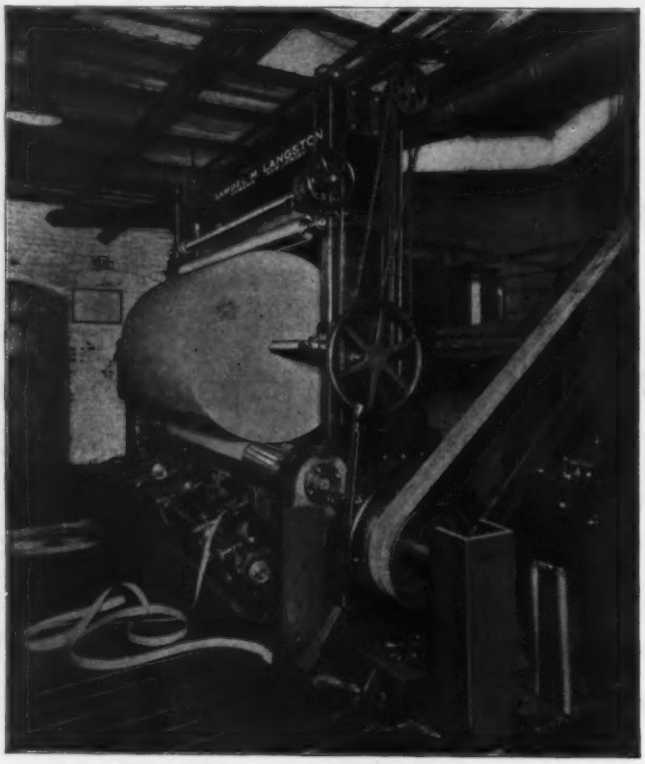
The Importance Of Wood Rosin To Your Industry

THE United States produces and supplies approximately 70% of the rosin consumption throughout the world. The total annual U. S. production, including both gum rosin and wood rosin, during the last four Naval Stores seasons ending March 31, 1926, was 1,972,000 barrels. Of this, 228,000 barrels was wood rosin, or a total of over 900,000 barrels of wood rosin for the four seasons.

The domestic consumption and exports during this period exceeded production, which materially reduced stocks. The total stock on hand in the United States, March 31, 1926, was only 444,000 barrels, which is less than three months average supply.

It is therefore evident that without wood rosin production the supply would have been insufficient for domestic consumption and exports. The importance of wood rosin production to industry at home and abroad is therefore apparent.

HERCULES POWDER COMPANY
(INCORPORATED)
943 Market Street, Wilmington, Delaware



Better rolls—and why

TO BEGIN with, because of the Langston Shear-Cut.

This method *cuts* the paper the whole length of the roll. It doesn't miss a fraction of an inch—no little uncut strips or uncut fibres to bind the rolls to one another and make them hard to separate.

And the Langston Shear-Cut makes a cut that is *clean*—Rolls are free of any trace of dust or lint.

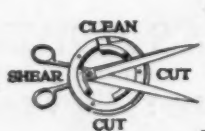
Another point. The Langston winding principle makes it possible to adjust the tension to just the degree you desire, and this tension is maintained from the first wrap around the rewind shaft up to the maximum diameter. That means hard-centered rolls, or uniform density.

For clean-cut, dustless, uniform, easy-to-separate rolls—*better* rolls—the Langston is the Slitter. If you're planning to buy a Slitter let us quote you on a Langston.

Langston Slitters

Type "A"
30 to 72 inches
Type "BA"
62 to 92 inches
Type "CA"
62 to 122 inches
Type "DA"
122 to 165 inches and wider.

SAMUEL M. LANGSTON COMPANY, Camden, New Jersey
A. H. Cox and Company, Inc., Seattle, Washington



LANGSTON SLITTERS

PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SIXTH YEAR

Published Every Thursday by the

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TABLE OF CONTENTS

Copyright 1927 by Lockwood Trade Journal Co., Inc.

I. P. Co.'s Agreement With Newfoundland 21
May Build Kraft Mill at Tuscaloosa 21
Contracts Let For New Oswego Mill 21
Oregon Pulp & Paper Co. Starts Machine 21
Marking Time in Philadelphia 22
Ednura Mfg. Co. Improves Mill 22
Hudson Valley Mills Unusually Busy 23
Hudson Valley Mills Use More Canadian Pulp 23
Toronto Expects Active Fall Trade 24
Changes in Hodge-Sherriff Paper Co. 24
Fraser Companies To Expand 26
Interest Grows in Brotherhood Election 26
Directorate Named for Kelso Mills 26
An Unusual Main Belt Drive 28
Result of Strathmore Safety Contest 28
Construction News 30
New Companies 30
Paper Trade News of the North West 32
Saranac Products Inc. Formed 32
New Anti Friction Belt Conveyor 32
New Type of Morse Chain 34
Paper Business Stable in Boston 34
Zellerbach Family Honored 34
New York Trade Jottings 36
Imports and Exports of Paper 38
Editorial 42
News Print Production for July 43
Technical Section
Sulphur Recovery from Relief Gases 45
Pulp Production With High Alpha Cellulose ... 48
Constant Humidity Testing Room 50
J. D. Rue Goes With Champion Fiber Co. 52
Chemical Recovery in Pulp Mills 53
United States Patents on Paper Making 55
Modified Sulphite Pulping Process 56
Cost Section 57
Imports of Paper and Paper Stock 62
New York Market Review 66
Miscellaneous Markets 68
Market Quotations 70

THE PAPER TRADE JOURNAL is indexed in Industrial Arts Index

Want and For Sale Advertisements 75, 76, 77, 78

THE EXACT TEARING STRENGTH

The Elmendorf Paper Tearing Tester does not tell the approximate tearing strength of paper.

It tells the EXACT tearing strength.

With the Elmendorf Paper Tearing Tester, it is possible to detect very slight differences in paper, which could not be detected in any other way.

Comparison of different samples of a grade of paper, or different grades of paper is easy with the Elmendorf Paper Tearing Tester.

Among the hundreds of users are:

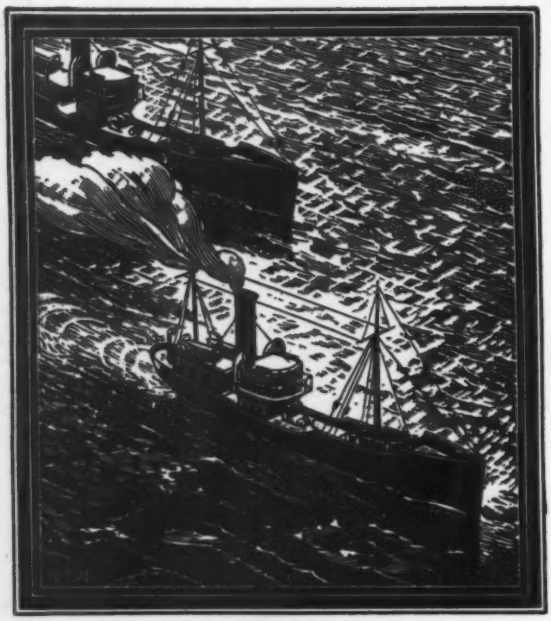
Standard Underground Cable Co.
West Virginia Pulp & Paper Co.
Montgomery Ward & Co.
Adams Bag Company
McLaurin-Jones Company
Warren Manufacturing Co.

Write for Bulletin Seventeen

Thwing Instrument Co.
3341 Lancaster Avenue
Philadelphia, U. S. A.

107

Get *Long Distance* . . . the boats are coming in



THE EXECUTIVES of a large New York fish company do not wait for their steam trawlers to come in from the fishing banks. While the boats are hundreds of miles at sea they are notified by wireless of the size and nature of the catch. With this information at hand, long distance telephone calls are made to big dealers throughout the eastern section of the United States. The cargo is sold before the boats reach the docks.

BUSINESS IS INCREASING its use of Long Distance. Many concerns do millions of dollars' worth of buying via the telephone lines. Important individual sales. Weekly calls to preferred lists of dealers or customers. Special long distance selling campaigns. And for stubborn collections.

Wherever the telephone is used, it saves the costly time of waiting. Decreases the expense of traveling. Smooths out tangles and delays. Cuts the red tape of bickering. Increases business. Long distance calls get things done with less fuss and fewer dollars. They put order and good results into a business. One of the best things about Long Distance is, it will nearly always cost less than you think. What distant call would be helpful and profitable now?... *Number, please?*

BELL LONG DISTANCE SERVICE

ESTABLISHED IN 1872

PAPER TRADE JOURNAL

With Which Is Combined

PAPER

Vol. LXXXV, No. 8 — Thursday, August 25, 1927

International's Agreement With Newfoundland

Big Paper Organization to Spend $15,000,000 in Enlarging Corner Brook Property and Other Purposes—Will be Allowed Until 1933 to Bring Capacity of Mill Up From 400 to 600 Tons of News Print Daily—New Company to be Formed Under Title of International Paper Company of Newfoundland

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., August 20, 1927.—Further particulars of the agreement between the Newfoundland Government and the International Paper Company for the purchase by the latter of the Newfoundland Power and Paper Company's properties are now available. The Company agrees to spend $15,000,000 on enlarging the property and for other purposes, and will be allowed until 1933 to bring the capacity of the mill up from 400 to 600 tons of news print daily. To raise the money, it will be permitted to put another £3,000,000 of debentures ahead of the two guaranteed issues, making in all £4,000,000, or $20,000,000 of mortgages, ranking ahead of the issues guaranteed by the British and Newfoundland governments.

Reid Interests to Be Taken Over

The company, it is further stated, will also interest itself in the Gander Valley Paper Mill project, which is controlled by the Reid Newfoundland Company. International Paper will buy out the company, into which the Reid interests have put much time and money, and will bring it to a producing basis. It will build a mill at the site, to be finished by 1933, and the Government agrees to build a railway to the mill. If the mill is not completed by 1933, the company may delay the work for two years by paying $50,000 a year forfeit.

Pulp Wood Export Rights Secured

On completion of the respective mills, the company will be allowed to export pulp wood from the northern limits at the rate of one half cord of wood for each ton of paper produced from the machines installed. Roughly, this means 30,000 cords a year for the new Corner Brook additions, and 30,000 cords for the Gander mill. Export rights are to be suspended if the mills fall below 80 per cent of production capacity. The royalty of $1 a cord will extend for twenty years, after which the price may be revised upward in proportion as news print prices rise. The company is to pay $75,000 a year in taxes for four years and $150,000 a year after that till 1973. Certain concessions will be allowed on machinery imported.

Government Relieved of Financial Burden

What the company will pay for the properties does not appear to be incorporated in the agreement, but the Newfoundland Government is to be relieved of any financial burden in connection with its guarantee of the bonds. Apparently, therefore, the company will not pay much beyond the assumption of the £4,000,000 of debentures guaranteed by the Newfoundland and British Governments and the additional £1,000,000 of unguaranteed debentures subsequently issued to secure a bank loan.

Whether the holders of junior securities will be protected is not known. The junior securities include a further bank loan of $10,000,000, secured by the junior debenture, $6,500,000 of income debentures, $9,000,000 of preferred shares and $5,000,000 of common shares. The Bank of England, it is said, will have a $10,000,000 holding of preferred stock in the new company to be formed under the new name of the International Paper Company of Newfoundland; this may be in lieu of the bank loan mentioned.

The cost of the construction of the Corner Brook plant mounted from $25,000,000 to $45,000,000, so that the magnitude of the burden on the Newfoundland and British Government was such that the agreement comes as a relief.

May Build Kraft Mill at Tuscaloosa

TUSCALOOSA, Ala., August 18, 1927.—The E-Z Open Bag Company, of Decatur, Ill., is definitely considering establishing a $2,500,000 Kraft paper bag mill in Tuscaloosa, according to information given out by a committee of the Chamber of Commerce.

Officers and directors said land on the Warrior River, near Riverside, will be used for the factory if it is located here.

About 600 people would be employed to begin with and the number increased later.

Contracts Let For New Oswego Mill

OSWEGO, N. Y., August 22, 1927.—Contracts have been let for most of the equipment for the new Taggert Oswego Paper and Bag Corporation mill, at Oswego, N. Y. This will undoubtedly be one of the most modern and up to date mills.

Briner economizers for recovering heat from the vapor of the paper machine to heat the mill will be installed in conjunction with a complete heating and ventilating system contracted with the J. O. Ross Engineering Corporation.

Oregon Pulp & Paper Co. Starts New Machine

PORTLAND, Ore., August 18, 1927.—When the Oregon Pulp and Paper Company, Salem, Ore., started its fourth paper-making machine on August 1, the amount involved in completed improvements in this plant during the past year reached $1,500,000. The capacity of the plant has been doubled. A sulphite mill established in connection with plant cost $200,000.

Paper Industry "Marks Time" in Philadelphia

Seasonal Lull Experienced in Local Market, Due to Absence of Many Leading Factors of Trade on Annual Vacations—Fine Papers Only In Limited Request at Present—Coarse Paper Section Unchanged, With Wrapping Paper Ruling Firm

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., August 22, 1927.—Conspicuous absence of buyers in both the consuming and distribution branches of the industry has created a time marking period in the local trade. As the heads of firms and buyers in the consuming trades enjoy their midsummer vacations the mills are holding off their offerings for the coming fall stocking. Manufacturers in the local territory report a growing demand for the autumn needs of the distributors but are not as active as in normal times. A few specialty mills are well booked ahead with fall orders. This is true of the board mills and builder supplies in paper wares and some of the fancy grades of colored wrappings for the mercantile trades.

Paper Stock Active

While the mills are heavier purchasers of paper stock, the rag market continues to hold to the listlessness that has marked its course for the past few months. The sudden demand for paper stock has practically cleared out warehouses and incoming supplies of old and new paper materials are few, so that the wholesalers are experiencing some difficulty in securing the larger volume of raw materials to meet the growing demand from mills in all parts of the country. Commoner grades of paper stock have been slightly advanced but are still far below the levels that make for profitable handling of these grades. The better grades of paper stock continue to hold to the higher quotations that have made this line of raw commodities the firmest of the list throughout the depression of the last six months, when values were forced to the lowest levels quoted in a decade and a half.

Fine Paper Situation

As the duller trend of the August vacation days creates a limited market for fine papers, the trading narrows down to hand to mouth supplies for the smaller printing houses or the allied consumers in the stationery and advertising fields. There has been no livelier interest on the part of the mills in the local fine paper trade towards canvassing for the coming fall stocking and while manufacturers show little interest in the local distribution trade at this time it is expected that there will be more interest displayed when travelers have returned from their midsummer vacations. Sales representatives have been called in from the road pending the termination of the summer holidays.

Spring Grove Now Paper City

Through the vast expansions that have taken place in the mills of the P. H. Glatfelter Company, operating one of the largest paper mills in this section of the country, the Pennsylvania headquarters of the company is now known as "The Paper Town," and is being exploited by the township authorities under this slogan. The highways leading into the town of Spring Grove, where are located the mills of the Glatfelter Company, are now blazing along the roadside large signs bearing this slogan for the town's only industry and the main support of its citizens numbering more than 1,000 inhabitants.

The mills have just been expanded through the addition of several new structures that are devoted to various purposes. Among the new buildings are the elaborate display rooms for the display of the various lines manufactured at the Spring Grove Mills and these are augmented by the broad assortment of sample files available to the trade and visitors to the mills. Another building that has just been completed is the enlarger super calender room devoted to the super calender stacks of the very latest type. Within recent times new power equipment and other units have been added. The Spring Grove mills are now in the foremost ranks of paper manufacturing plants in the State and give employment to a large number of workers. The authorities of the town in blazoning its progress along the highways recognizes the Glatfelter Company as the basic industry for the maintenance of its citizens and the success of the community and is co-operating with the manufacturers in giving recognition to the part it has played in the progress of the township.

Specialized Coarse Paper Sales

Like the other divisions of the distribution branch of the industry the coarse paper dealers are marking time with a continued specialized market for seasonal sellers. Wrapping papers are firm and moving in small lots. Builders' supplies continue to move in larger volume and show a tendency towards higher prices. Corrugated products are in lively demand and have been slightly advanced in values. Paper board is holding firmly and at higher prices than normally quoted in the midsummer days. Reports from the National Paper Box Manufacturers Association show that current demand for paper boxes is fairly well maintained and slightly above that of the same period of 1926. Waxed paper manufacturers and glassine producers in this section are now engaged in a broader scale of operation in preparation for the coming fall demand and are reported to have booked orders in advance of the volume of last year at this time. Waterproof papers are freely distributed to the consumers engaged in the manufacture of machinery for exportation. The cooler days of last week curtailed the season spurt in drinking cups and other hot weather supplies.

Endura Manufacturing Co. Improves Mill

Having purchased the former mills of the Durham Paper Company at Durham, Pa., the Endura Manufacturing Company, with Philadelphia headquarters at 11th street and Washington avenue, is now ready to expand its production. By the first of September the Endura Manufacturing Company will have completed the extension of mill equipment to facilitate doubled capacity. There is being installed a new Badenhausen boiler, new heaters and dryers which will provide the additional equipment for a 100 per cent increase in output of the various products featured especially by the Endura company. The firm is engaged in the production of specially strong papers used by the manufacturers of automobiles, file manufacturers, envelope manufacturers, furniture trade and like industries. There is being produced in the Durham mills of the company a line of beaming papers, black papers, express papers, press board, red rope, index bristols and other specialties in natural finishes and in colors. These papers are produced in any thickness from .007 to .035 inches.

Safepack Mills In New Quarters

Larger quarters and warehousing space have been acquired by the Safepack Mills, of Millis, Mass., for the Philadelphia branch distribution of the line of waterproof papers manufactured in the New England mills. Heretofore the Safepack Mills have maintained a sales office in the Quaker City but with the removal of the local branch to its new home there will be afforded a shipping service with warehouse stocking for immediate needs of the dealers. The new home, located at 217 Walnut street, provides for sales offices under the direction of Manager Ralph Lichenstein, and a three story warehouse, where will be stocked the Safepack waterproof papers for speedy service to the trade. Larger orders will be sent direct from the mills in Millis as heretofore. The Safepack Mills have been busily engaged in ship-

ment of papers to the dealers and consumers for the machinery trade, large quantities of these papers being used for the shipment of machinery to foreign parts, indicating the heavy demand for American made mechanical equipment.

Richie Howarth Stocks Cover Papers

An entire stock of cover papers manufactured by the American Writing Paper Company has been added to the grades carried by the Richie Howarth Company, 804 Sansom street, distributors of the Eagle A line exclusively. The American embossed cover papers have been stocked in small lots in the local trade until the addition of these grades to the lines carried on hand by the Richie Howarth Company. As a result of the campaigning on these covers the local distributors have built up a large patronage and they have become one of the special lines featured by the Richie Howarth Company. A full line of the American embossed covers in leather substitute designs and pebbled effects are stocked and these are available in all colors and shades for substitutes for leather coverings in the printing, stationery and engraving trades. There are 25 designs in these covers included in the stocks of the Richie Howarth Company.

John Costello Opens Own Office

Having for many years been affiliated with the Philadelphia wholesale and rag trade, John Costello is now engaged in the distribution of these commodities on his own account, with headquarters on Front street, below Market. Until his recent connection as manager of the Hoffman Corr Company in its Philadelphia branch, he was associated with Penn Paper and Stock Company as manager of the rag and waste department.

Gordon H. Friend On Coast Tour

Gordon H. Friend, vice president and general sales manager of the Thomas M. Royal Company, 7th and Grange streets, among the largest of bag manufacturers in this section of the country, is on a prolonged business trip extending to the Pacific Coast and the Southern states. At the present time he is engaged in promoting the interests of the Royal Company in Seattle and other northern Pacific Coast points. Following a swing along the coast he will return to Philadelphia headquarters in late October, enroute making a complete circuit of the Southern states. President Thomas M. Royal, head of the firm, is touring Europe and will be back at his desk in early September.

Paper Men In Western States

Philadelphia paper dealers have been making the Western states their field of business effort within recent weeks. Another paper dealer who has been concentrating on that section of the country is President George W. Ward, head of the D. L. Ward Company, 28 South 6th street, now in Denver, Colo. He is heading for the Pacific Coast and other far West centers before making the homeward journey. Before leaving for the West he announced the selection of the fifty best specimens of printing to be featured in the Graphic Arts Exhibit for 1927.

A. H. Wilkins On Coast Trip

Paper box makers' imported papers are being shown to the Western trade by the Paper Service Company, 19 South 7th street, by the traveling representative, A. H. Wilkins. He is making the 1927 holiday line of German, Austrian, French and other European made fancy box makers' papers a feature of the trip and round among the trade associates of the local importers. Having been in the Middle West for the last six weeks he will complete his itinerary by September 15.

Allen E. Whiting In Europe

President Allen E. Whiting, head of the Whiting-Patterson Company, 314 North 13th street, who has been spending the summer in Europe, is expected back at his desk next month.

Paper Trade Resume Meetings

Following the adjournment of the summer sessions of the Paper Trade Association, there will be held a dual gathering of the trade associates in the coming week. The Fine Paper Division of the Association will resume its semi-monthly meetings on Wednesday, while the Wrapping Paper Branch will hold its monthly session on Thursday.

Leon Beck Back From Northern Trip

President Leon Beck, of the Charles Beck Paper Company, who, following attendance at the camp meeting of the S. D. Warren Paper Company, at the Cumberland, Me., mills, continued on a tour of Nova Scotia, is now back at his desk in headquarters, 609 Chestnut street.

Hudson Valley Mills Unusually Busy

GLENS FALLS, N. Y., August 22, 1927.—Paper mills of the Upper Hudson Valley are unusually busy at present with most of the mills operating a full week, although low water in the Hudson River is having a tendency to keep down production in some cases. Conditions in the Upper Hudson industry are considered remarkably good as the mills usually experience a dull period during the summer months. This year mills have operated steadily throughout the summer at normal capacity.

The International Paper Company's mills at South Glens Falls and Corinth are both running three eight hour shifts, closing down machinery at midnight Saturday and resuming at 8 o'clock Monday morning. The Fort Edward mill, which is now undergoing changes, will shortly resume production, it is said. Construction work to fit the mill for making a high grade specialty paper is being rushed at top speed. The paper being turned out at the South Glens Falls mill is being shipped entirely by boat from Fort Edward through the Champlain Canal to New York and other cities.

The plant of Finch, Pruyn and Company in this city is running five and two-thirds days each week, this schedule allowing for the closing of the plant on Sunday and for an eight hour shutdown on Monday, the first Monday shift being omitted. Although the water in the Hudson River at present is very low, Finch, Pruyn and Company are producing at the rate of more than eight hundred tons of paper weekly.

Large shipments of news print continue to go through the Champlain Canal almost daily, the canal shipments from Canada this season being unusually large. It is reported that much of the paper being shipped through the canal by mills in Canada is being stored in warehouses in the larger cities. In this way, it is said, the mills are providing stocks to draw upon during the winter months when canal navigation will be at a standstill.

Hudson Valley Mills Use More Canadian Pulp

GLENS FALLS, N. Y., August 22, 1927.—One of the interesting developments in the Hudson River paper industry during the past year or two has been the increasing use of Canadian wood pulp by mills in the Hudson Valley. Steadily increasing shipments of Canadian pulp are being locked through the Champlain Canal each season as well as the large shipments coming in by ocean steamer through New York and Albany. The fact that the Hudson River log drive this year was the smallest in years is considered of more than ordinary significance.

One firm with a three machine equipment is said to be using almost exclusively wood pulp from Canadian sources. This firm formerly stored a large tonnage of pulp wood each year which was used in the company's own pulp mill, but in the past year or two the pulp wood purchased by this company has been very small. As a matter of fact the company's main pulp mill was destroyed by fire some time ago and it was not considered advisable to rebuild, the owners finding it more profitable to purchase their wood pulp requirements. The fact that this company has been forced in recent years to switch from the Champlain Canal to the railroads in getting pulp wood shipments has had considerable to do with the firm's attitude. The water route formerly used has been abandoned as a part of the state waterways and the railroad freight rates are such that the company found it to its advantage to discontinue grinding.

Toronto Expects Active Fall Paper Market

Large Orders Should be Booked During Closing Days of Month, When Many Outside Buyers Will be Attending the Canadian National Exhibition—Ontario Paper Mills Continue Generally Busy, Although Turnover Has Been Slightly Below Mark

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., August 22, 1927.—The paper trade is preparing for active business, the holiday season now being practically over, it is expected that volume will pick up considerably, for there are generally large orders placed during the closing days of this month for printed literature of all kinds for the Canadian National Exhibition, which opens in a few days, and attracts a large number of outside buyers to Toronto.

The mills continue busy, but warehouse turnover has not been up to the mark so far this month. Manufacturing stationers are getting ready for the opening of the schools and have been rushed, while envelope producers are fairly well satisfied with the volume they are doing. The wrapping paper trade is keeping up well, although there has been a slight falling off in the demand for kraft. The board mills continue active although there is not a large tonnage ahead but current orders keep the plants going and prices are fairly well maintained, not having undergone any change for a long time.

Petitions to Tariff Board

There will be an interesting session of the Tariff Board in Ottawa on September 22, when Canadian printers and publishers will have a field day. One of the widest in scope is the application of George F. Chipman, editor of the *Grain Growers Guide*, Winnipeg, for the removal of the customs duty and sales tax on materials, supplies and equipment entering into the production in Canada of magazines, including, of course, magazine paper. A somewhat similar application, set for hearing at the same time, is that of the Reid Press, Ltd., for the "free listing" of high priced printing and lithographing presses, cutting machines, bronzers, etc. Requesting an increase in the customs tariff on lithographed and printed articles, the reference in the name of the Canadian Lithographers' Association will be considered for a second time, while a first hearing will be given to the application of the Canadian Nashua Paper Company, of Peterboro, for a reduction of duty on cambric, imported for gumming purposes, for ultimate use in the manufacture of paper boxes and containers. Several of these applications are of far reaching importance.

Changes in Hodge-Sheriff Paper Co.

In connection with the business trip to Canada of W. S. Hodge and W. H. Sherriff, of the Hodge-Sherriff Paper Company, Toronto and Montreal, who are selling agents in Great Britain and Canada for the Wayagamack Pulp and Paper Company, of Three Rivers, Que., it is understood that Mr. Hodge will remain in the Dominion to look after the interests of the company, after an absence of ten years in London, Eng. Mr. Sherriff, who has been in England for a year and a half, will likely return to London in the course of a few weeks to take up the work heretofore supervised by Mr. Hodge. Messrs. Hodge and Sherriff are spending a few days in Montreal at present on business.

Will Erect New Warehouse

Mayor Foster, of Toronto, recently laid the cornerstone of the new warehouse of Wilkins Smallware Company, at the corner of King and Princess streets. The Wilkins Smallware Company, Ltd., has occupied its present quarters at Colborne and Market streets for more than a quarter of a century. The firm handles considerable quantities of paper and has built up a large trade in this connection. The need of expansion was felt some twenty years ago and the firm purchased land for their new warehouse. The new building will cost about $150,000. James Wilkins, president, stated that the story was one of "mobility, plus economy and parking space." Mr. Wilkins has been calling on the trade for over forty years.

Port Arthur Welcomes G. W. Mead

Members of the Port Arthur Rotary Club were the guests of George W. Mead, president of the Thunder Bay Paper Company, Port Arthur, Ont., and the Consolidated Waterpower and Paper Company, of Wisconsin Rapids, Wis., and C. E. Jackson, manager of the Thunder Bay Paper Company, on a tour of inspection of the big new plant at Port Arthur recently. The inspection took place immediately following the regularly weekly luncheon of the Rotary Club. Each Rotarian was presented with a souvenir booklet, "Consolidated News," and a pocket note book, bound in leather and gold embossed, "International Rotary."

Speaking at the dinner tendered him by the citizens of Port Arthur, Mr. Mead said that the plant was at present turning out 125 tons of news print daily. A second machine was being installed to bring the output up to 250 tons a day. The company was obligated to the Government to erect a second unit which would double the output of the present plant within three or four years. "We will grow," said Mr. Mead, "just as the demand for news print grows which, in twenty-three years, has increased from 2,000 tons a day to 12,000 tons a day on the American continent, Canada being the greater producer now." What appealed to him in the Thunder Bay district were the natural resources, the forests, the water powers and the pure water of Lake Superior.

Busy Fighting Forest Fires

More than 1,000 men with approximately 270 pumps, aided by a force of twenty aeroplanes, all operating under the auspices of the Department of Lands and Forests of Ontario, were fighting forest fires recently. Ten new steel towers, a large number of wooden structures and more than 400 miles of new telephone line were also playing important roles in meeting the bush fire emergencies caused by the protracted dry season during the month of August.

In an official statement issued by the Hon. William Finlayson, head of the Lands and Forests Department, he said that there had been some alarming reports published in the press. While he admitted that conditions during August had been less favorable than in July when scattered rains helped to minimize the fire hazards and kept down the losses, there was no great cause for apprehension. Recently in the districts of Sudbury and Sault Ste. Marie a considerable number of fires had occurred.

The worst blaze was in Township 129 when approximately 1,000 acres were burned over. No timber of any value was destroyed, as this area had been completely operated by lumbermen. In the township the fire was probably started by lightning as evidence of this was found by the fire rangers. A number of smaller fires in the district, which occurred recently, were completely got under control and the timber loss in all the outbreaks had been very light.

Notes and Jottings of the Industry

R. J. Flynn, of the sales staff of the Buntin-Reid Company, wholesale paper dealers, Toronto, and former Mayor of Weston, Ont., has been confined to his home by illness but is making improvement.

H. A. Goldsbrough, sales manager of the Hodge-Sherriff Paper Company, Toronto, is spending his holidays among the Kawartha Lakes.

Fred W. Halls, of the Fred W. Halls Paper Company, and

Put one on your dirtiest roll

A Vickery Doctor is needed on every

Breast Roll
Wire Roll
Press Roll
Smoothing Roll
Dryer
Yankee or M. G. Dryer
Calender Roll
Super Calender Roll
Sizing Roll
Coating Roll
Cooling Roll

Let us send you a Vickery Doctor on trial for any kind of roll and put it on the roll that's most heavily encrusted with dirt and scale.

Watch the Vickery Doctor clean it up and keep it clean, without scoring. Prove to your own satisfaction that every roll that needs to be clean needs to be equipped with a Vickery Doctor.

Will you try it?

BIRD MACHINE COMPANY
SOUTH WALPOLE --- MASSACHUSETTS

1029

Mrs. Halls, have returned from an enjoyable motor trip to Montreal and Quebec city.

R. L. Dove, of Millington & Sons, London, Eng., large envelope manufacturers, was in Toronto calling on the trade last week. He is completing a business trip around the world and is now on his way home.

George A. Davidson, sales manager of the Howard Smith Paper Company, Montreal, who lately returned from an extended visit to the Old Country, was in Toronto on business.

George Allen, of the Buntin-Reid Company, Toronto, has been laid up for the past two weeks with illness, but is now considerably better.

Rupert Huntley, son of A. Huntley, manager of the Toronto branch of the Hodge-Sherriff Paper Company, has joined the staff of E. H. Wilkinson & Co., paper mill representatives.

William Wood, of the city sales staff of the Fred W. Halls Paper Company, Toronto, is holidaying in Aylmer and other points in Ontario.

C. F. Mansell, veteran sales representative of the Howard Smith Paper Company, Toronto, accompanied by his sister, Miss Mansell, who has been enjoying an extended holiday at various points in England, has returned home, much benefited by his trip and is once more on the job with renewed energy. Mr. Mansell had not revisited his boyhood scenes in over half a century and was given a cordial welcome on all sides.

Crane Mills Again Secure Bank Note Contract

[FROM OUR REGULAR CORRESPONDENT]

DALTON, Mass., August 23, 1927.—The announcement that the Crane Mills of Dalton had obtained a new contract with the United States Government for the manufacture of bank note paper is received with much pleasure here, assuring prosperity for another year at least in the town. The first exclusive contract with the government was with the Crane Mills in 1879 but previous to that the company had been manufacturing bank note paper from about 1850. The annual production of the four mills in Dalton is estimated at $4,000,000 in value.

The first Crane mill was erected in 1801 by Zenas Crane, grandfather of the late Senator W. Murray Crane. It was a one vat mill, with a capacity of 125 sheets a day including writing, book and news print. The location was on the site of the present "Old Berkshire" mill.

When the government practically took over the control and supervision of the bank note paper manufacture in 1879, the Cranes bought the brick mill just over the Pittsfield line and the manufacture of bank note paper has continued there since. In 1890 only three quarters of a ton a day were made; now six tons a day are manufactured.

It is understood that the last contract calls for about 1,500 tons of which some 400 tons will be used for the manufacture of the new $1 bill of reduced size.

Fraser Companies to Expand at Madawaska

[FROM OUR REGULAR CORRESPONDENT]

BANGOR, Me., August 22, 1927.—An important business development is now under way in northern Maine, ground having been broken for an addition to the big plant of the Fraser Companies, Ltd., at Madawaska—a new paper mill to represent an expenditure of two million dollars or more.

The Fraser Companies, Ltd., is a Canadian corporation which has been in business many years with a big plant at Edmundston, N. B., across the St. John river from Madawaska in Maine, where two years ago a large paper mill was erected, pulp being supplied through a tube from New Brunswick, a great industry being built up on the American side.

The new paper mill will be rushed to completion, as a large crew will be employed. The product of the mills is shipped to various parts of the United States.

Interest Grows in Brotherhood Election

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., August 22, 1927.—Matthew J. Burns, secretary of the International Brotherhood of Papermakers, who created a surprise last week by refusing to permit his name to go on the ballots as a candidate for re-election, dropped another bomb into organization politics when he announced that he would be a candidate for president of the Brotherhood, running against William R. Smith, present head of the union. As a result of this development one of the stiffest fights in years is expected at the October election.

Mr. Burns has been nominated for president by about two-thirds of the local unions. He allowed his name to be placed in nomination, according to his own statement, because of requests that have come to him over the past several months from unions both in the United States and Canada. The office of president of the Brotherhood pays an annual salary of $5,000.

Both Smith and Burns are very well known among the papermakers and both appear confident of success at the election in October. On two occasions in the past Burns defeated Smith for the office of secretary.

Jeremiah T. Carey, former president of the Brotherhood for eighteen years and deposed several years ago after one of the bitterest union fights in history, has been nominated for second vice president by the unions in Potsdam. Mr. Carey is now a resident of Pontiac, Mich. Frank P. Barry, first vice president, will have no opposition at the fall election.

M. H. Parker, for two years president of the Brotherhood and now a resident of Skaneateles, N. Y., George Schneider, of Appleton, Wis., Simeon Weir, of International Falls, Minn., Thomas McGrath, of Escanaba, Mich., and A. F. McLeod, of Espanola, Ont., are candidates with Mr. Carey for second vice president to succeed Arthur Huggins, of Holyoke, Mass., who will be the unopposed candidate for secretary.

George J. Schneider, third vice president, has been renominated to succeed himself as has also Arthur D'Aoust, of Hull, Province of Quebec, fourth vice president. There will be several candidates for fifth and sixth vice president.

The fact that several men have been nominated for two or more offices has resulted in notification from headquarters advising these men that they must immediately notify headquarters as to the office they are seeking. Ballots will be mailed out of Albany to all local unions early in September.

While many of the offices will be hotly contested, chief interest centers around the fight between Mr. Smith and Secretary Burns for the presidency.

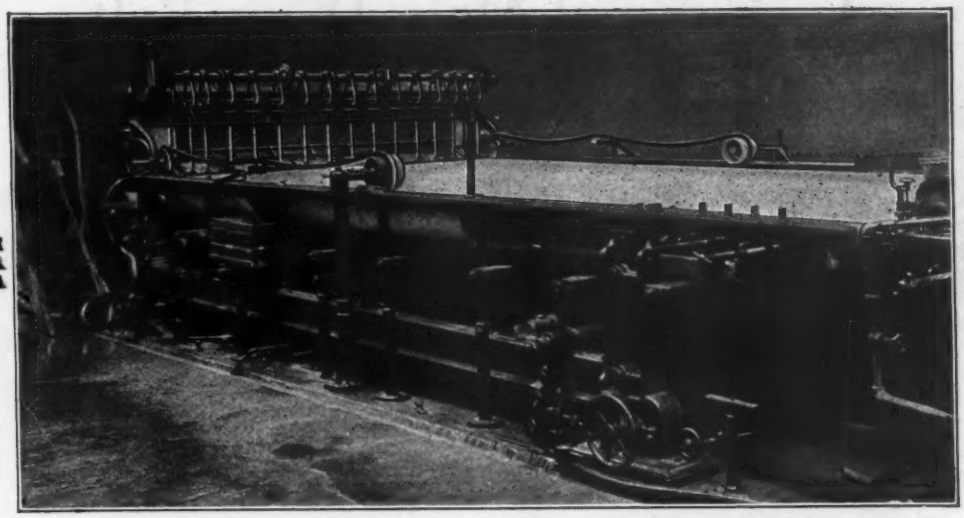
Directorate Named for Kelso Mill

PORTLAND, Ore., August 19, 1927.—Following talks before the Kelso Commercial Club, Kelso, Wash., on the possibilities for a $250,000 paper mill providing Kelso citizens share half the expense of the cost of the site, the following men were announced as directors who will compose the corporation financing the plant: Philip Alban, West Paper Company, Seattle; Dan J. Albertson, paper mill engineer formerly of Kalamazoo, Mich.; Carl G. Anderson, E. P. Dearborn, Murray Jacobs, E. T. Pattison, and R. L. Thornsdale, all representative business men of Seattle.

According to Fred G. Statham and D. J. Albertson, promoters of the syndicate, the plant will be built on the Can Company site on the Cowlitz River in South Kelso.

Natural Resources Production Committee

Louis H. Pierson, president of the Chamber of Commerce of the United States, has recently appointed Dr. Hugh P. Baker, executive secretary of the American Paper and Pulp Association, and Milton E. Marcuse, president of the Bedford Pulp and Paper Company, Bedford, Vt., as members of the Advisory Committee of the Natural Resources Production Department of the Chamber.



In Your Mill, Too!

Over 100 mills—news, book, wax, sulphite bond, parchment, Kraft, Strawboard, catalogue, wall paper, rotogravure, tissue, glassine and sulphite specialties—are today operating Voith Stock Inlets. Cutting production costs. Increasing production of machines. Saving wires. Improving the quality of the paper. Producing paper of uniform caliper. Eliminating lumps and foam spots. Reducing labor. Saving time.

These outstanding reasons are why the Voith Inlet is so widely accepted. Most mills operate from two to ten Inlets. It is preferred because it performs.

The Voith Inlet can be used to advantage also in your mill. Let us show you in detail how the Voith Inlet will earn its cost quickly. Write today for our 20-page booklet covering other mills' experiences and complete description of the Voith Inlet.

VALLEY IRON WORKS CO.
APPLETON, WISCONSIN

New York Office: 350 Madison Avenue

Western Mfg. & Sales Div., Smith & Valley I. W. Co., Portland, Oregon

An Unusual Main Drive Belt

The largest known rubber transmission belt in the world is shown in the accompanying illustrations.

This belt is 72 inches wide, 12-ply in thickness, 142 feet 8 inches long, and tips the scales at the 3,000-pound mark. It is a "Serubco" Cushion Center Belt and was furnished to the Bryant Paper Company, Kalamazoo, Mich., May, 1927, by the Security Rubber & Belting Company, of Chicago, Ill.

The belt operates at a speed of 4,400 feet per minute and is used on a Cross Compound Corliss engine which develops 1,150 horsepower. The engine flywheel is 16 feet in diameter and the receiving pulley 9 feet in diameter. A 5-foot diameter idler runs on the top or slack side. This belt was applied endless to the pulleys by means of a diagonal stepped splice, each step being cemented and riveted. The following machinery is driven by the power transmitted by this 72-inch belt:

2—1,800 lb. Niagara beaters.
2—1,800 lb. Jones beaters.
1—1,800 lb. J. H. Horne & Sons washer.
4—Large Horne jordans. Two on the line at one time.
1—Triplex stock pump—12 x 14 inches.
1—Triplex stock pump— 9 x 10 inches.
2—500 G. P. M. centrifugal pumps.
4—300 G. P. M. centrifugal pumps.
5—Agitators for 12 x 12 feet stock chests.
1—Agitator for 10 x 8 feet clay tank.
1—Agitator for 8 x 8 feet clay tank.
1—Agitator for 10 x 12 feet stock chest.
1—Gardner elevator, 2,000 lbs.

From the point of view of size, power transmitted and amount

THE BELT IN OPERATION

of equipment depending upon it for continuous performance, this 72-inch "Serubco" belt is indeed a most unusual and interesting main drive unit.

H. E. Dennie, who is shown in the photo, is vice-president and general sales manager for Security Rubber and Belting Company. Mr. Dennie has had 27 years of successful sales experience in the rubber belting field and has sold a great many transmission belts—but he modestly admits this belt to be the largest he has sold to date.

Birnie Paper Co. To Go Out of Business

[FROM OUR REGULAR CORRESPONDENT]

SPRINGFIELD, Mass., August 22, 1927.—The Birnie Paper Company which has been in business for about 45 years will close its business about September 1 according to an announcement made

H. E. DENNIE

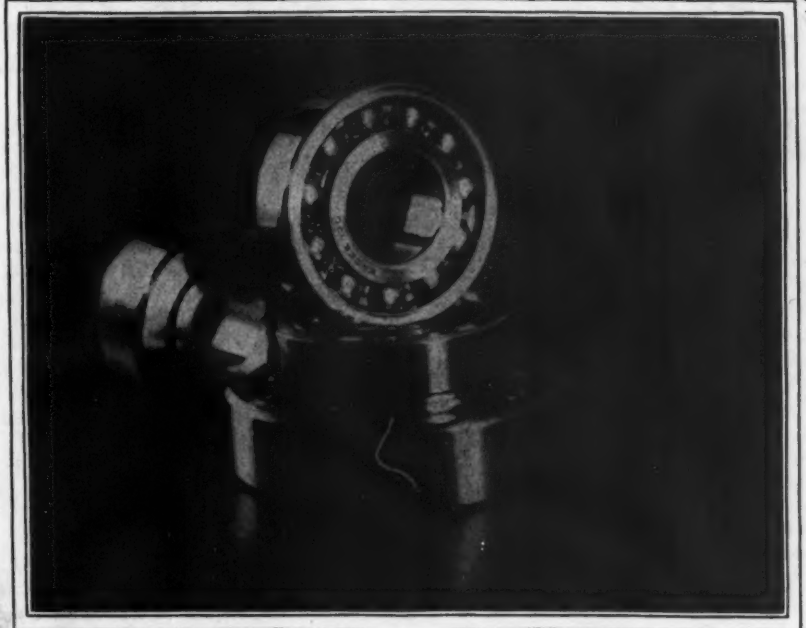
last week, due the keen competition in the papeterie business and the narrowing margin of profit. The process of liquidation has been going on for some time. The real estate at 214 Birnie Avenue will be the last of the company property to be sold.

The company was established about 1882 by the late Alfred Birnie with whom were associated his brothers William P and Donald Birnie. After the deaths of his brothers Donald continued to manage the property which always remained in the Birnie family. The company was incorporated in 1901. At the height of its prosperity the company employed 200 hands but this number has been cut down the past year or so during the process of liquidation. The present officers are the following: President, Edmond J. Birnie; Vice President and Treasurer Walter Birnie.

Result of Strathmore Safety Contest

[FROM OUR REGULAR CORRESPONDENT]

MITTINEAGUE, Mass., August 16, 1927.—The safety race in vogue for some years at the mills of the Strathmore Paper Company at Mittineague and Woronoco closed a few days ago with 22 departments having perfect records. This year the race was changed somewhat and was between departments instead of between the mills. There were forty departments entered in all. Mittineague mills scored in eleven departments, six in the No. 1 mill, and five in the No. 2 mills. The Woronoco No. 1 mill scored in the loft, pasting, shipping, and miscellaneous manufacturing.



Turn Chance Into Surety—
Use New Departure Ball Bearings

GOOD enough will not do today. Machine buyers are demanding refinements that only ball bearings can give.

Speeds are higher, loads are heavier and must be sustained continuously for greater production.

Uninterrupted production is an increasingly important factor; therefore, time out for bearing troubles is not allowable.

Equip the machines you build with New Departure Ball Bearings, for they will meet competition with surety.

Factful engineering data on "Ball Bearing Application" sent on request. Engineering service supplied without obligation. The New Departure Manufacturing Company, Bristol, Conn., Detroit, Chicago.

New Departure Quality Ball Bearings

672

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Milford, N. J.—The Warren Manufacturing Company, manufacturer of glassine and other processed papers, has arranged an expansion and improvement program at its mill, reported to cost more than $750,000. The work will include the construction of new additions to increase the present plant area about one-third; considerable new machinery, including paper-making equipment, will be installed. The company has begun work on a housing development for employees to include a group of 13 double dwellings, and it is understood that this quota will be increased at a later date.

Los Angeles, Cal.—The Ingram Paper Company, 1112 Santa Fe avenue, is having plans completed for the construction of a new one-story and basement reinforced-concrete building at 1504 Rio Vista street, to be 150 x 162 feet, designed primarily for storage and distributing service. Complete mechanical facilities will be installed for handling stock, including conveying apparatus, hoists, etc. The entire project will cost close to $90,000.

Holland, Mich.—C. J. Lawrence & Bros., Inc., recently organized under state laws, with paid up capital of $250,000, has succeeded to the plant and business of the Lawrence Brothers Paper Box Company, Chicago, which recently arranged for the removal of its plant to Holland. The new company plans extensive production; an important phase of output will be the manufacture of milk bottle caps under a schedule of about 1,000,000 per day. Other output will be devoted to paper boxes, cartons, etc. C. J. and Lester Lawrence head the organization.

Peshtigo, Wis.—The Peshtigo Paper Company is said to have plans under way for the early rebuilding of the portion of its mill recently damaged by fire with loss reported at close to $25,000, with equipment. William Weibel is general manager.

Kalamazoo, Mich.—The Kalamazoo Vegetable Parchment Company has plans under way and will take bids in about 30 days for a new addition to its plant, designed for general office and operating service. It will be two-story, brick, estimated to cost about $125,000. Billingham & Cobb, Pythian Building, Kalamazoo, are architects and engineers. Jacob Kindleberger is president.

Plattsburg, N. Y.—The Saranac Products, Inc., care of Dunmore, Ferris & Dewey, First National Bank Building, Utica, attorneys, recently formed with capital of 300 shares of stock, no par value, is reported to be perfecting plans for the operation of its proposed local plant for the manufacture of crepe and other paper products, including towels, napkins, etc., as well as containers and cartons. It is understood that operations will begin at an early date. The company is headed by Hans V. P. Norstrand, Cumberland avenue, Plattsburg, and Oliver A. Quayle, 895 Warren street, Albany, N. Y. The last noted is a member of the firm of Quayle & Son, Albany, prominent in connection with the furnishing of engraved and other paper products for State Government service.

Jacksonville, Fla.—The American Fibre Company is said to have completed plans for the immediate construction of a new plant at Benson Junction, to cost about $25,000 with equipment, and will proceed with work immediately.

South Manchester, Conn.—The Rogers Paper Manufacturing Company, Boston, Mass., has been incorporated under Massachusetts laws, with capital of $100,000, by officials of the local company of the same name, and will carry out an expansion program. The plant is given over to the production of press-board for electrical service and kindred products. Anthony H. Brackett, 1 Federal street, Boston, is president and treasurer of the new company; and Robert G. Emerson is vice-president.

Philadelphia, Pa.—The Brown & Bailey Company, manufacturer of paper boxes and containers, has awarded a general contract for its proposed new plant addition at 417-25 North Eighth street, to the Robert E. Lamb Company, 841 North Nineteenth street, Philadelphia. The factory will be three-story and basement instead of five-story (as previously reported), 90 x 131 feet, and is reported to cost close to $85,000, with equipment. The Ballinger Company, 105 South Twelfth street, Philadelphia, is architect and engineer. Work on the project will begin at once.

Portland, Ore.—The Hawley Pulp and Paper Company, Oregon City, Ore., has authorized plans for the construction of a new one-story building, 100 x 200 feet, on East Main street, between East Second and East Third streets, Portland, to be used for branch warehouse and distributing service. It is estimated to cost about $65,000. It is understood that bids will be asked at an early date with view to completion in November. Edmund Bidwell, Strong & McNaughton, Trust Company Building, Portland, are architects.

Skaneateles Falls, N. Y.—The Decorated Specialty Paper Manufacturing Company, Inc., recently organized under state laws, with capital of $35,000, is said to be planning the operation of a local plant for the manufacture of a special line of paper goods, including decorative material. The company is headed by Ernest B. and Robert B. Brewster, both of Skaneateles Falls; it is represented by A. E. Fitch, Cazenovia, N. Y., attorney.

Kapuskasing, Ont.—The Spruce Falls Power and Paper Company, Bay street, Toronto, Ont., has authorized the immediate construction of its proposed new paper mill at this place, and has awarded a general contract for buildings to Morrow & Beatty, Ltd., 442 George street, Peterborough, Ont. The new unit will be of four-machine type and is reported to cost more than $2,000,000, with machinery. A contract for a hydroelectric power plant at Smooth Rock Falls for service at the mill, as well as for the complete electrification of the plant, has been let to the Canadian Comstock Company, Ltd., 331 Bay street, Toronto. It is understood that the plant is scheduled for completion within 12 to 18 months.

New Companies

New York, N. Y.—The Metropolitan Folding Carton Company has been incorporated with capital of $20,000 to manufacture paper cartons and other containers. The incorporators are Israel, Morris and Frank Ivry. The company is represented by David Paris, 2 Lafayette street, New York.

Philadelphia, Pa.—Howard Marcus, trustee in bankruptcy for the Estate of McCarey & Co., Inc., with plant at 1831 North Fifth street, formerly given over to box and container production,

MORE HISTORY!

"Simple facts not foolish statements."

CHAPTER VI.

Old beaters rebuilt to the Dilts NEW TYPE, on kraft container.

Read this report from a mill on kraft container where Dilts first rebuilt *one* beater and later *five* more because of satisfactory performance:

"This 66 x 54 beater carried 1500 lbs. before rebuilding. Now it carries 3,000 lbs. (1800 lbs. of kraft sheets and 1200 lbs. of mixed papers,) and circulates heavy 8% consistency stock at 8 to 12 feet per minute. The beating time is 2 hours and the laboratory tests show much better beating and better Mullen, tensile and tear tests than before when the furnish was 1400 lbs. to 1500 lbs.

"On this beater's record orders are now placed with Dilts Machine Works for rebuilding five (5) more liner beaters at this plant."

A beater that will satisfactorily handle heavy "furnish" produces stock that is more uniformly beaten and shows better laboratory tests. What you seek is increased capacity, lower costs and better quality paper. All this can be accomplished in the Dilts NEW TYPE Beaters, either new equipment or the old beaters rebuilt to the NEW TYPE.

You should investigate the NEW TYPE history, because,

"Your paper is made in your beaters."

Dilts

MACHINE WORKS, Inc. FULTON, N.Y.

EXPORT OFFICE ~15 PARK ROW~ NEW YORK CITY

has arranged for the sale of the property of the company, including machinery, equipment and stock.

Wilmington, Del.—The Naubuc Paper Board Company has been incorporated with capital of $250,000, to manufacture paper board products. The company is represented by the American Guarantee & Trust Company, 1600 Delaware avenue, Wilmington.

New York, N. Y.—Yund & Co., Inc., has been incorporated with capital of $30,000, to manufacture paper and paper products. The incorporators are H. Hartley Dougan and Theodore J. Yund, 125 Guy Park avenue, Amsterdam, N. Y. The company is represented by Harry H. Wiggins, 43 Exchange Place, New York.

Geneva, N. Y.—The Seneca Paper Company has filed schedules in bankruptcy, following recent petition, listing liabilities at $25,798.02, and assets of $57,154.37. The latter covering land, buildings and equipment in accord with an appraisal made in 1924.

Troy, N. Y.—The Marvin Wall Paper Company has been incorporated with a capital of $40,000, to manufacture and deal in wall papers and kindred products. The company is represented by J. Farrell, Troy, attorney.

New York, N. Y.—The Columbia Fibre Company, New York, has filed notice of increase in capital from $20,000 to $1,000,000, for expansion.

Chicago, Ill.—The Great Lakes Paper Company, 515 South Wells street, an Illinois corporation, has made application for authority to increase the objects of its charter for general expansion in the paper and pulp industry.

Brooklyn, N. Y.—George F. Picken has been appointed receiver for the Giant Carton Company, 54 Knickerbocker avenue, manufacturer of corrugated paper cartons and packing cases, in bond of $1,500.

Kalamazoo, Mich.—The Excel Paper Corporation, care of the Colonial Charter Company, Citizens Bank Building, Wilmington, Del., has been chartered under Delaware laws, with capital of $200,000, to operate a local mill for the manufacture of high grade paper goods.

Paper Trade News of the North West

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 19, 1927.—Rudolph Meili, chief erector of the Beloit Iron Works, has arrived in Olympia, Wash., to take charge of the work of installing machinery at the Tumwater Paper Mills. Mr. Meili will spend several weeks in the northwest supervising this job.

B. T. McBain, general manager of the construction of the projected Northwest Pulp and Paper Company's plant at Astoria, Ore., has received more than 60 bids on the construction and because of this large number of proposals no awards will be let before late in August, as the tabulations must be made and then presented to the board of directors. The plant, as previously announced, will cost between a million and a million and a half.

H. L. Wollenberg, president of the Longview Fibre Company, Longview, Wash., accompanied by his sister Miss Lucile Wollenberg and his two daughters, has gone to San Francisco. Mr. Wollenberg has been in Longview for a number of weeks during the construction of the new plant of the company with which he is interested.

Saranac Products Inc. Formed

[FROM OUR REGULAR CORRESPONDENT]

PLATTSBURG, N. Y., August 15.—A new concern to deal in paper specialties has been organized in this city under the name of Saranac Products Inc. The principal office of the firm will be located here. The company has been chartered under the laws of New York State having received its charter during the past week. It is authorized to issue one hundred shares of stock with no par value. The company will deal in paper containers, towels, napkins, etc. Among the principal stockholders and incorporators are H. G. Nostrand, of Plattsburg, John W. Guilbord, of New York City, and Oliver A. Quayle, of Albany.

New Anti-Friction Belt Conveyor Idler

Announcement is made by Link-Belt Company, Chicago, of the introduction of its Anti-Friction Belt Conveyor Idler and Return Rolls of an advanced type of belt conveyor equipment. It is said that this equipment embodies many salient features of advantage in design which are the result of years of study and research. The bearings are Timken tapered roller bearing type, which are totally encased within the roll hub.

The outstanding feature of the idler is the absolute protection afforded by a labyrinth grease seal, mounted in a grease cap which also serves as an outboard reservoir and lubricates the bearing on the outside as well as on the inside, especially when the roll is on an incline. This, in turn, is protected by a deflector plate which deflects dirt, dust, grit or any foreign material away from the bearings and grease seal, and will not permit the washing of the grease away from the labyrinth.

The rolls are mounted on a self-cleaning "T" base. All rolls are interchangeable, being capable of serving in any of the three positions. The entire frame is riveted, and is without bolt or nut to work loose or to come out of adjustment. Another advantage claimed is the close working tolerances to which all parts are built, closer than have ever been attempted in belt conveyor history.

The use of specially-constructed manufacturing tools assures alignment of bearings, and a well-balanced concentrically running roll. Special care is exercised in the machining of the roll shell, to obtain uniformity of thickness of the wall into which the machined heads are pressed and securely held in place by spinning.

The heads are dished for rigidity and strength, and the entire construction is such as results in maximum strength. It is claimed also that the superior design and construction of the roll make it practicable to vary the characteristics of the material used for the roll shell. Further, a special iron has been developed for use in coke plants, that resists the corrosive action of sulphuric fumes and the abrasiveness of coke dust.

Moreover, Link-Belt rolls have been granitized for the handling of certain types of material such as salt, alkali and various other materials that cause incrustation, pitting and rusting of ordinary steel or iron. The idler rolls are supported in malleable iron brackets having a large bearing surface for supporting them, and they are not dependent upon the use of slots. The brackets are so constructed as to support the ends of two adjacent rolls, thus obtaining perfect alignment of rolls. Roll shafts are supported at both ends close to the rolls, without overhang, thus reducing the bending moment to a minimum. Rolls are spaced far enough apart to permit convenient removal from the frame by simply lifting them out without the use of any tools.

Idler rolls are made in various standard lengths, and they are furnished in combinations to suit standard belt widths. The end stands are securely riveted to the "T" iron base, and are spread at the foot to present a rigid support for the idler. The Link-Belt anti-friction belt conveyor idlers are made at the Ewart plant of the Link-Belt Company, Indianapolis, in a building especially designed for their exclusive manufacture.

New Machinery for Producing Shopping Bags

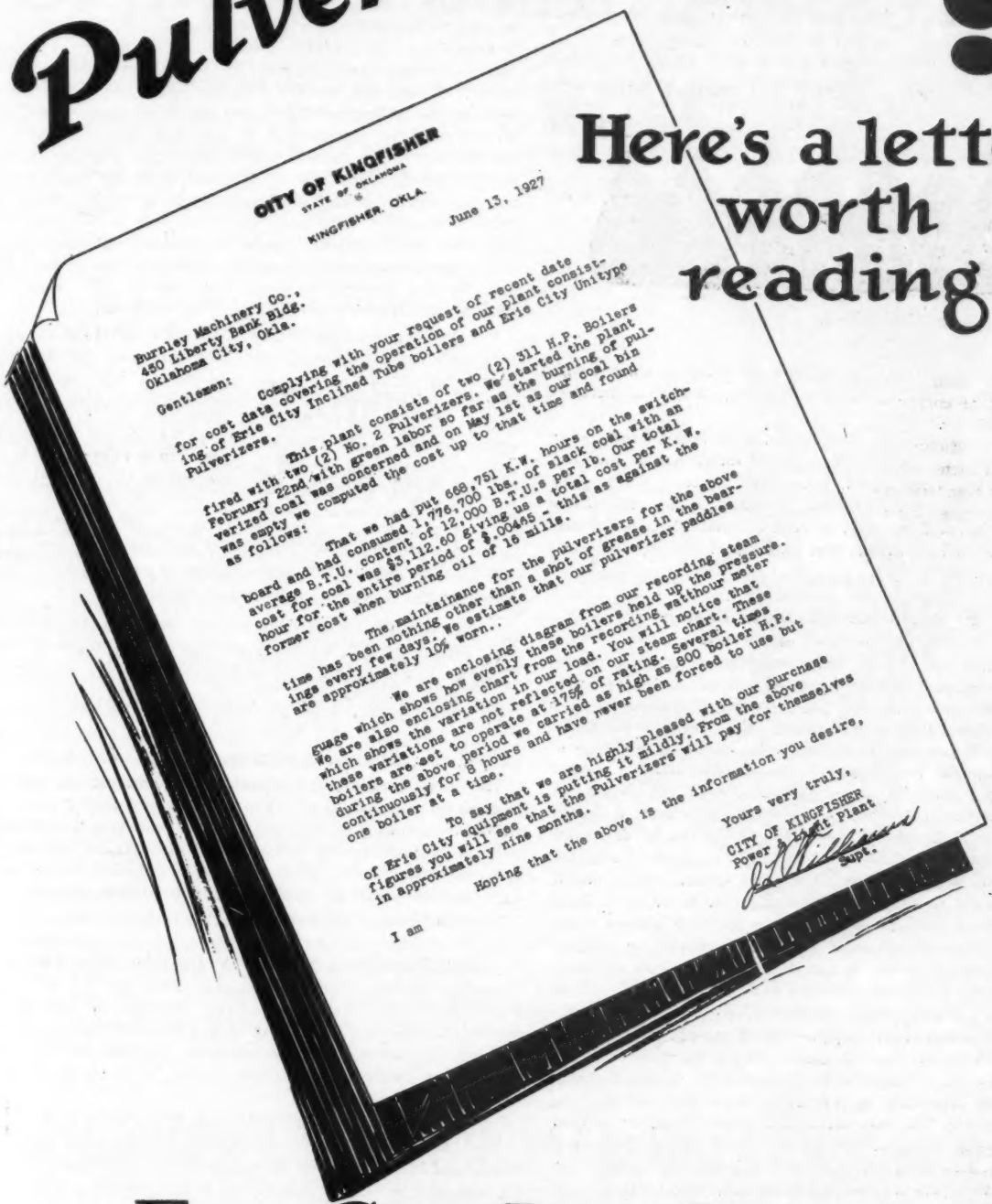
ST. PAUL, Minn., August 22, 1927.—The Deubener's Shopping Bag Company, after several months of experimental and development work, has perfected machinery for successfully producing in quantities its new Leatherlyke shopping bag, for which a patent has been applied.

This method of manufacture gives the finished shopping bags a leather effect and entirely removes the cheap paper appearance.

Mr. Deubener states that Leatherlyke shopping bags are the most beautiful bags he has ever produced and that his buyers are very enthusiastic about this new improvement. He has just finished a three weeks' selling trip through the East and volume of business secured will keep his plant working overtime till December 15, and several big contracts were made for the year 1928. He reports his business growing and is very optimistic for the future.

Pulverized Coal?

Here's a letter worth reading



CITY OF KINGFISHER
STATE OF OKLAHOMA
KINGFISHER, OKLA.

June 13, 1927

Burnley Machinery Co.,
450 Liberty Bank Bldg.
Oklahoma City, Okla.

Gentlemen:

Complying with your request of recent date for cost data covering the operation of our plant consisting of Erie City Inclined Tube boilers and Erie City Unitype Pulverizers.

This plant consists of two (2) 311 H.P. Boilers fired with two (2) No. 2 Pulverizers. We started the plant February 22nd with green labor so far as the burning of pulverized coal was concerned and on May 1st as our coal bin was empty we computed the cost up to that time and found as follows:

That we had put 668,751 K.W. hours on the switchboard and had consumed 1,776,700 lbs. of slack coal with an average B.T.U. content of 12,000 B.T.U.s per lb. Our total cost for coal was $3,112.60 giving us a total cost per K.W. hour for the entire period of $.00465 - this as against the former cost when burning oil of 16 mills.

The maintainance for the pulverizers for the above time has been nothing other than a shot of grease in the bearings every few days. We estimate that our pulverizer paddles are approximately 10% worn..

We are enclosing diagram from our recording steam gauge which shows how evenly these boilers held up the pressure. We are also enclosing chart from the recording watthour meter which shows the variation in our load. You will notice that these variations are not reflected on our steam chart. These boilers are set to operate at 175% of rating. Several times during the above period we carried as high as 800 boiler H.P. continuously for 8 hours and have never been forced to use but one boiler at a time.

To say that we are highly pleased with our purchase of Erie City equipment is putting it mildly. From the above figures you will see that the Pulverizers will pay for themselves in approximately nine months.

Hoping that the above is the information you desire,

I am

Yours very truly,
CITY OF KINGFISHER
Power & Light Plant
J. D. Williams
Supt.

ERIE CITY IRON WORKS
ERIE, PENN'A, U.S.A.

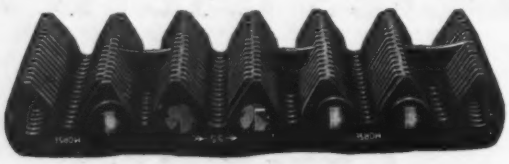
New Type of Morse Chain

The Morse Chain Company, Ithaca, N. Y., announces an improved chain. The improvements are principally due to changes in the design of the rocker joint. The new design, 55 type chain, will run on all sprockets, the new link being the same length and height as the old.

The new joint, shown herewith, operates on the same principle as the original Morse Rocker Joint. The seat pin, at the left, has been enlarged to give greater bearing surface and also to make it a stronger transverse member to hold the chain together.

The rocker pin, at the right, has been changed in contour, thereby giving a better surface of contact with the links.

The combined joint members give a more nearly round hole with reduced clearance, holding the links more securely on the pins. A better balanced joint, heavier than the old, produces a smoother running chain. It is a more rugged chain—the joint



NEW TYPE OF CHAIN

pins are about 8 per cent heavier and the complete chain weighs twice the pitch per inch foot. The breaking strength is increased about 50 per cent.

The improved, better balanced joint, with larger bearing surfaces and pins more securely held in the links, permits increased tension without shortening the life of the drive.

The Morse Chain Company also announces at this time that it has recently installed the most modern automatic electric furnaces to insure the more uniform heat treating of the parts entering into the chain.

Paper Business Stable in Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 22, 1927.—Stability in the paper market is well maintained. Although seasonal dullness has been more or less in evidence, it is estimated that the summer business has been in greater volume than was expected. Some dealers are "comfortably busy." Bonds and ledgers continue at the same levels as well as writing and book papers, although some find the demand rather spotty. Many of the buyers of fine writing papers are away on vacations, but dealers are looking for a greater activity in the early or middle part of September. The box board market is generally firm. Business in stiff boxes is reported to be quiet, but the slackness has not caused prices to slump. Single manila pulp lined board is firmer and quotable now at 57.50 to 62.50, compared with a previous range of 55 to 60. The opinion is expressed that advances in mixed paper will probably be reflected in increased values of box board if the demand for box board becomes greater.

Some of the grades of old papers have risen, due to the augmented demand and short supply. Mixed papers and old newspapers have been in good demand. While the hand-to-mouth policy seems to be in vogue at the present time, dealers feel that the period of depression is practically at an end and that the situation is nearly like that before the World War, or at least somewhat analogous to it. In some quarters of the trade it is stated that sellers of waste paper are disposing of all they can secure. Mixed papers are specially mentioned. No. 1 mixed paper is quotable at .50 to .52½, compared with a previous range of .45 to .50, and old newspapers are quotable at .55 compared with a previous price of .45 to .50. Other advances include old kraft, now at 2.00 to 2.25, compared with 1.80 to 1.95; over-issue news at .70, compared with .55 to .60, and chip box board at .65, against a former price range of .45 to .60.

In bagging, gunny and scrap burlap are somewhat weaker. Manila rope, however, is firm at a minimum price of 3.75. A very sizable quantity has sold at this figure. In old domestic rags quotations are at practically the same levels and those of a week ago, although roofing stock still shows a softening tendency.

Zellerbach Family Honored

SAN FRANCISCO, Cal., August 18, 1927.—A thoroughly enjoyable reception and dinner dance was given recently by the employees of the Zellerbach Paper Company of the northern California district to Isadore Zellerbach, president of the company, Mrs. Zellerbach, and Marcus M. Baruh, brother-in-law of Mr. Zellerbach, who had recently returned home after a tour of several months in Europe. The event was in the way of an official welcome of the organization to Mr. and Mrs. Zellerbach and Mr. Baruh and the occasion was a most happy and enjoyable one, a testimony to the cordial and fraternal spirit that exists throughout the organization. Two hundred and thirty-five people were present, the party being made up of members of the organization from the San Francisco, Oakland, Sacramento, and other divisions in the northern California, together with members of their families. Several were present from Los Angeles. The dinner took place at the Mark Hopkins hotel, San Francisco.

M. R. Higgins, chairman of the board of directors of the Zellerbach Paper Company, was toastmaster and did the honors in a congenial and appropriate manner. An informal talk in a happy vein was given by Mr. Zellerbach, expressing his appreciation of the entertainment and his satisfaction in being home again with his business family. Mr. Baruh expressed his felicitations and enjoyment of the occasion. A. L. Neumann, of the Los Angeles division, who has just completed forty years in the service of the company and who was the first employee of Anthony Zellerbach, founder of the company, gave a short and interesting talk. Miss Lena Clark, of the staff of the Sacramento division was given the twenty-year service pin, having recently completed the necessary time to win this honor.

Many telegrams of welcome to Mr. and Mrs. Zellerbach and Mr. Baruh and greetings to the gathering were read by the toastmaster. Several beautiful floral pieces were also received. An entertainment of a lively nature was given by members of the staff. After dinner, dancing and bridge were enjoyed.

Paper Men in American Management Assn.

The paper, printing, and publishing industries are prominently represented in a group of forty-one leading business executives who have organized an Advisory Board of the American Management Association, feeling that improved management methods are essential in maintaining present prosperity and that knowledge of such methods should be spread more quickly throughout business.

E. R. Behrend, President, Hammermill Paper Company, Erie, Pa.; Henry S. Dennison, President, Dennison Manufacturing Company, Framingham, Mass.; T. E. Donnelley, President, R. R. Donnelley & Sons Company, Chicago, Ill.; and A. W. Shaw, President, A. W. Shaw & Company, Chicago, Ill., are on the Board. A wide range of industries and some of the largest corporations in the country are represented. Sam A. Lewisohn, is Chairman of the Board of directors of the American Management Association.

Both production and distribution will be included in the scope of the board, which will serve in guiding the policies of the Association and in focussing its increased research facilities on pressing industrial problems. Among the fields in which new management methods are now being developed and tested by the association and its members are those of labor efficiency and labor relations, financial control and budgeting, sales research and salesmen's training, office management and personnel administration.

Let's Look At It As A Matter Of SAVED Dollars And Cents

For it's the SAVED dollars and cents that make for profit. Every time you stop your beater to remove the junk it means a loss of precious minutes, a loss of man power and reduced production. It may mean only a few minutes once or twice a day but when you figure the cost of this shut down in terms of money it runs into a considerable amount over a period of a year.

The Murphy Junk Remover

will eliminate all shut downs for removing junk—it will automatically remove all junk and foreign material from the beater continuously. All junk carried along with the pulp in bottom of the beater tub falls into a pit and when gate is in a raised position it is caught in conveyor buckets and carried up over sprockets where it is emptied in box. This box is easily cleaned and water enters it through perforated plate, flushes all pulp which might be carried with junk into box and returns it to the beater. Let one of our engineers fully explain The Murphy Junk Remover to you—better still let us install one on your beater and demonstrate the savings to you.

Put the Murphy Junk Remover to work on your beater and you'll never again have to stop it to remove junk—not if it runs a hundred years.

Griley-Unkle Engineering Company

Fort Wayne, Indiana

New York Trade Jottings

W. G. Mitchell, assistant to the president, and Robert Grieg, superintendent of the Kenogami mill of Price Brothers & Co., Ltd., Quebec, Que., were visitors to New York last week.

* * *

H. H. Hanson, technical director, Eastern Manufacturing Company, Bangor, Me., spent a few days in New York last week on business for his company.

* * *

The United States Treasury has advised the New York collector that German 9-point straw board, classified under paragraph 1302, tariff act of 1922, is dutiable at the rate of 4 marks per 100 kilos.

* * *

E. J. Keller, president of the E. J. Keller Company, Inc., dealers in foreign and domestic paper mill supplies, of 200 Fifth avenue, New York, sailed last Friday aboard the French liner *Ile de France* for Havre, on a two months tour of Europe in the interest of his organization.

* * *

The Columbia Mills, Inc., New York, has filed a complaint before the United States Shipping Board in connection with intercoastal shipments from Atlantic to Pacific Coast ports attacking Rule 17 of the Intercoastal Tariff which provides for an additional charge of 10 cents per 100 lbs. over the carload rate if delivery is made by more than one shipper or from more than one shipping point. This complaint is a general one because it might affect any shipper who would consolidate shipments from several parties such as paper stock packers, etc.

* * *

The New York Merchants' Association, acting on complaints from its members, has initiated conferences in an attempt to bring about the adoption of uniform regulations to govern the loading of merchandise arriving in coastwise commerce or imported from abroad and the issuance of a statement giving a uniform scale of rates. At present the loading of this merchandise is done almost entirely by a group of longshoremen known as "loaders" who in recent years have maintained a union organization and who charge "what the traffic will bear."

Make Aerial Surveys in Canada

F. T. Jenkins, managing director, of James D. Lacey & Co. (Canada), Limited, has returned to Montreal after completing two aerial sketching operations, covering approximately 8,000 square miles. Flying was commenced in the Hudson's Bay drainage, northern Quebec, at the unusually early date of May 15, but subsequent weather conditions were less favorable for flying than usual, and tended to reduce the advantage of an early spring. A second operation in the Ottawa Valley embraced some new departures in forest reconnaissance. Maps were prepared in the air and the locations of strips to be run by ground parties so placed as to gain a reliable average of timber quantities with a minimum expenditure of time. The cruising parties went in on the areas as soon as the air maps showing waterways, forest types, etc., were available and measured the timber along the strips indicated. Because recent burns were elimited by air, ground parties were saved much time and labor, resulting in a very rapid and low cost job over a very extensive territory.

Another aerial survey of intensive character on a portion of the Spanish River Pulp and Paper Mills Limits on the Sturgeon and Spanish watersheds in northern Ontario has also been carried out by M. J. Commins, assistant manager of the Montreal office of James D. Lacey & Co. (Canada), Limited. This work consisted of sketching in detail forest types and waterways on approximately 350,000 acres. Owing to unfavorable weather conditions the time involved was about three weeks.

Norwegian Pulp and Paper Market Quiet

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 24, 1927.—The Norwegian ground wood market is reported to be undergoing the usual summer dullness, and prices are very poor, says a report to the Department of Commerce. The program of curtailment in production agreed to by the Norwegian and Swedish manufacturers is proceeding according to schedule. The market for news print is also very quiet, and while the mills are fairly well employed sales are small.

Gloucester Council To Aid New Paper Co.

GLOUCESTER, N. J., August 1, 1927.—Opposition among members of Gloucester Council regarding the moving of the John Lang Paper Company, of Philadelphia, to this city, has vanished. Council, it is said, will vote unanimously in favor of the final passage of the ordinance that will close Charles street west of Water street in favor of the Lang Company at is meeting next Thursday night.

Several councilmen explained that the reason they were skeptical was due to the fact that the city has been fooled on numerous occasions before and that they were "going slow for the benefit of the city."

The Gloucester Chamber of Commerce has urged council to give the new concern the necessary concessions, as "they mean business."

Dorr Co. Expands Service Facilities

For the purpose of giving its customers specialized assistance in connection with the installation and initial operation of its equipment, the Dorr Company Engineers, of New York City have established a Service Department which will be in charge of Mr. H. A. Linch.

Mr. Linch, who has been associated with the Dorr Company for eight years, has had a wide and varied experience in chemical, metallurgical, and industrial operations, not only in this country, but also in South America and Europe.

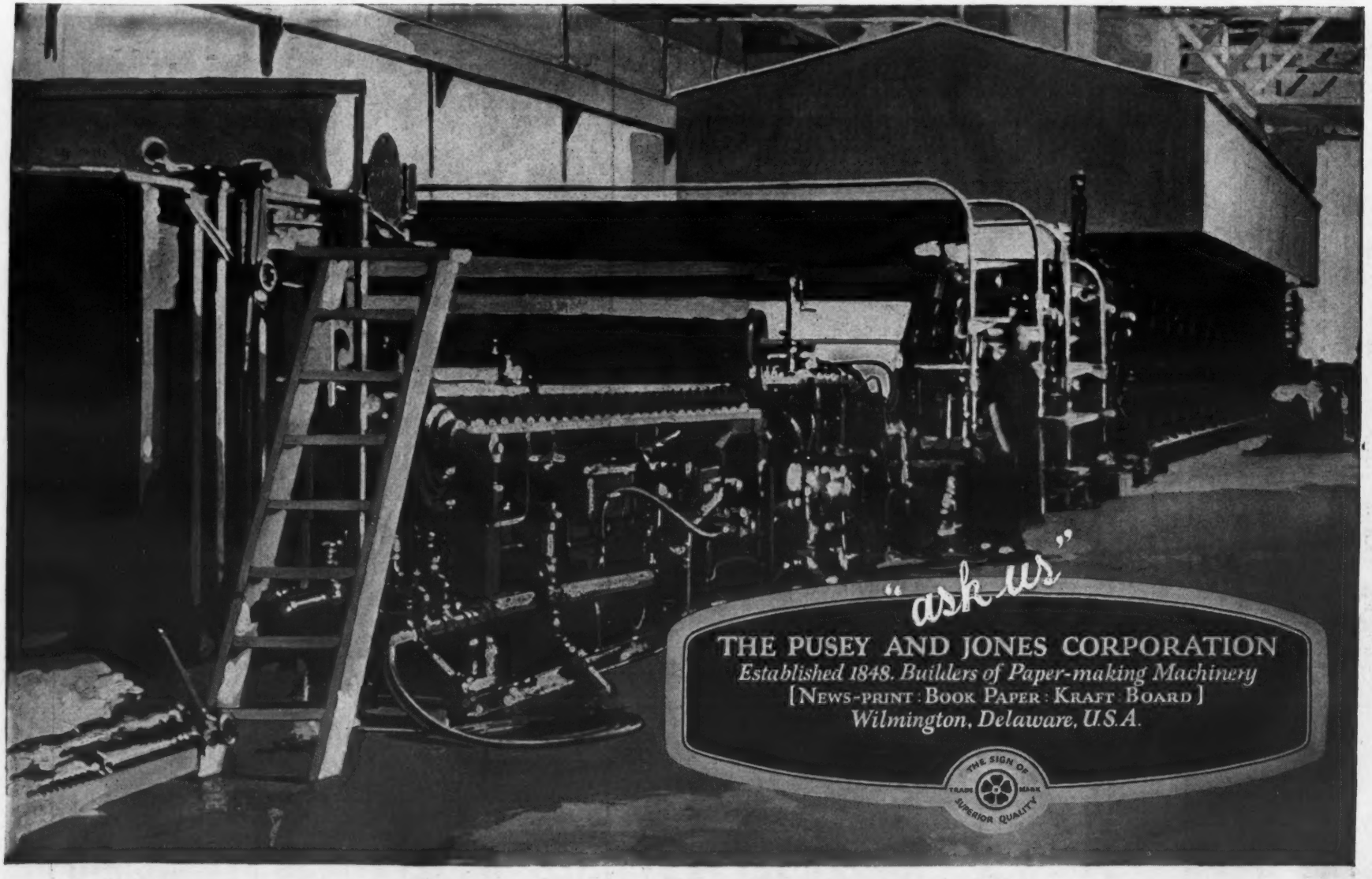
He will be assisted in this work by a staff made up of men who have had many years of field experience with all types of Dorr equipment and who are especially qualified to give the users of this equipment high grade service.

Link-Belt Speed Reducers

The Link-Belt Company, of Chicago, Indianapolis and Philadelphia, have just issued a booklet describing and illustrating the Link-Belt Sykes Herringbone Speed Reducer. This speed reducer can be economically applied to all classes of service no matter how light or heavy it may be. Distinct advantages are quietness of operation, high efficiency, and ability to withstand shocks. Three standard units have been developed to cover a wide range of ratios and capacities. The single reduction unit designated as type "S" covers ratios up to 10 to 1. Types "D" and "DV" are double reduction units. Type "D" is designed for heavy duty and ratios are from 10 to 1 up to 80 to 1. Type "DV" is a light duty reducer. Ratios range from 10 to 1 up to 130 to 1.

Link-belt Sykes Herringbone Gears are the backbone of this speed reducer. The teeth run continuously across the face of the gear giving a good bearing service with the several teeth engaged. The pinions are of heat treated alloy steel cut integral with the shaft. The unit has a minimum number of parts. Oversize Timken bearings are used. Gears rotate within a large oil reservoir and bearings are splash lubricated. This provides ample lubrication. Special oil baffles at shaft projections keep dust out and oil in. The housing is free from troublesome oil grooves and oil wipers. Rigid construction insures proper alignment of parts and Base Plate furnished when required maintains alignment of the reducer and its motor.

This product is manufactured at the Philadelphia plant, 2045 Hunting Park avenue, and on the West Coast, by the Link-Belt Meese and Gottfried Company, 19th and Harrison streets, San Francisco.


"ask us"
THE PUSEY AND JONES CORPORATION
Established 1848. Builders of Paper-making Machinery
[NEWS-PRINT : BOOK PAPER : KRAFT BOARD]
Wilmington, Delaware, U.S.A.
THE SIGN OF TRADE MARK SUPERIOR QUALITY

Illustrating one of the two 168-inch Bond Paper Machines, designed and built in 1926 by The Pusey and Jones Corporation for Fraser Paper, Limited, Madawaska, Maine

Entire contents of this advertisement copyrighted 1927 by The Pusey and Jones Corporation, Wilmington, Delaware, U. S. A.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending June 30, 1927 and for the Six Months Ending June 30, 1927, as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER

	June				Six Months Ending June 30			
	1926		1927		1926		1927	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and manufactures (total)	.....	$12,093,560	.....	$13,095,875	.....	$67,147,135	.....	$71,602,973
Printing paper—								
Standard news print ..... lbs...free	323,634,871	10,763,743	322,945,086	10,669,509	1,767,444,884	59,476,831	1,892,991,203	62,630,016
Imported from—								
Finland	7,980,222	231,049	5,578,828	162,193	33,588,188	988,769	32,433,875	924,383
Germany	357,056	10,909	1,123,090	47,523	20,178,379	596,963	7,572,086	244,924
Norway	673,688	20,927	2,551,670	72,331	2,179,922	65,849	17,184,293	467,389
Sweden	8,850,009	262,808	8,768,800	254,950	41,020,380	1,256,290	70,414,751	2,039,540
Canada	274,727,465	9,222,824	295,667,036	9,833,298	1,619,191,239	54,904,199	1,721,792,458	57,503,086
Newfoundland and Labrador	31,046,431	1,015,226	8,986,141	291,210	50,649,761	1,643,083	42,927,128	1,430,564
Other countries	.....	.....	269,521	8,004	637,015	21,678	666,612	20,130
All other, n. e. s. ..... lbs...dut.	1,204,952	62,632	660,488	37,377	8,345,004	422,824	5,175,794	259,244
Grease-proof and waterproof papers..lbs...dut.	195,416	38,939	180,941	21,661	1,180,334	203,688	953,502	156,441
Kraft wrapping paper ..... lbs...dut.	1,107,356	50,082	1,343,471	57,187	4,593,738	199,721	4,717,503	207,267
All other wrapping paper ..... lbs...dut.	684,965	47,133	146,680	7,815	2,971,077	221,694	2,173,792	112,607
Writing, drawing, bond, etc. ..... lbs...dut.	852,856	67,547	308,075	70,645	1,807,657	398,328	1,443,139	342,806
Surface coated ..... lbs...dut.	145,573	64,584	248,199	96,240	995,653	380,230	1,100,741	436,556
Tissue paper ..... lbs...dut.	236,685	123,723	222,545	139,209	1,417,575	663,348	1,535,533	879,247
Pulp boards in rolls ..... lbs...dut.	6,538,765	158,304	4,387,553	102,179	41,354,782	1,006,145	31,311,341	763,958
Other paper boards, n. e. s. ..... lbs...dut.	.....	69,713	.....	85,342	.....	411,124	.....	485,589
Cigarette paper, cigarette books, and covers ..... lbs...dut.	751,089	186,260	4,136,937	1,333,890	3,920,241	1,033,493	8,188,363	2,486,925
Hanging paper ..... lbs...dut.	204,880	36,898	141,805	46,489	1,725,597	310,898	1,511,495	364,612
Paper boxes ..... lbs...dut.	196,354	84,759	178,822	114,613	1,029,163	483,111	1,168,672	659,613
Pulp or papier-mâché and manufactures of, n. e. s. ..... lbs...dut.	113,041	29,751	109,555	25,075	1,073,083	191,976	1,023,669	181,503
Duplex decalcomania, not printed....lbs...free	123,051	29,537	57,870	14,084	365,302	90,468	375,810	82,963
All other ..... dut.	.....	279,955	.....	274,560	.....	1,653,256	.....	1,553,626

WOOD PULP

Mechanically ground wood pulp.....tons..free	23,274	649,078	18,103	559,448	119,427	3,507,577	98,925	2,880,571
Sulphate wod pulp ..... tons	85,738	5,599,178	71,370	4,610,638	440,003	29,091,438	427,193	27,958,072
Unbleached ..... tons..free	58,354	3,426,085	46,256	2,637,442	292,933	17,112,930	270,838	15,620,161
Bleached ..... tons..free	27,384	2,173,093	25,114	1,973,196	147,070	11,978,508	156,355	12,337,911
Imported from—								
Finland	2,177	97,563	4,402	218,362	26,169	1,405,382	42,127	2,253,635
Germany	5,910	407,316	4,179	297,026	41,867	2,823,987	30,385	2,179,075
Norway	6,326	475,888	5,840	433,188	36,368	2,912,965	34,259	2,613,855
Sweden	38,900	2,355,965	23,533	1,452,258	119,412	7,324,238	132,978	8,268,288
Canada	30,531	2,079,141	31,102	2,086,486	199,759	13,617,256	168,557	11,449,652
Other countries	1,894	183,305	2,314	123,318	16,428	1,007,610	18,887	1,193,567
Sulphate wood pulp, unbleached (Kraft pulp) ..... tons..free	33,635	2,153,519	25,969	1,608,310	150,187	9,596,304	145,999	9,216,359
Imported from—								
Finland	1,243	79,891	1,074	52,029	11,913	690,626	5,019	274,235
Norway	1,058	64,770	648	35,360	5,724	368,248	4,549	273,245
Sweden	18,903	1,176,339	13,386	812,921	59,036	3,644,369	70,232	4,328,406
Canada	12,229	818,255	10,715	699,430	71,256	4,755,662	65,447	4,291,357
Other countries	202	14,264	146	8,570	2,258	137,399	752	49,116
Sulphate wood pulp, bleached.....tons..free	2,571	165,525	607	41,853	7,734	516,457	7,815	521,148
Other pulp ..... tons..free	294	19,607	253	28,703	1,107	66,387	996	86,113

CRUDE PAPER STOCK

Rags for paper stock ..... lbs...free	30,638,162	640,564	31,697,548	928,023	248,475,154	5,728,505	185,662,317	4,206,503
Waste bagging, waste paper, etc.....lbs...free	7,850,903	186,324	11,225,311	145,642	63,074,467	1,334,108	43,806,601	597,822
Old rope and all other paper stock....lbs...free	12,362,342	282,171	4,831,328	185,330	46,248,110	1,851,704	28,017,469	962,997

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS

Colors, dyes, stains, color acids, and color bases, n. e. s. ..... lbs...dut.	777,880	864,119	215,070	220,329	2,726,247	3,049,078	3,187,447	3,549,943
Imported from—								
Belgium	17,169	29,529	13,943	18,995	116,780	181,792	109,465	159,719
France	9,258	6,324	6,306	6,783	101,109	129,357	101,066	116,442
Germany	476,433	513,886	120,437	102,789	1,317,018	1,382,555	2,029,471	2,130,376
Italy	5,677	5,971	5,629	5,742	46,193	48,342	58,857	68,789
Switzerland	237,323	277,289	65,140	80,864	1,003,599	1,154,003	748,829	933,226
United Kingdom	29,925	27,484	474	557	101,919	96,207	94,791	90,638
Other countries	2,095	3,636	3,141	4,599	39,629	56,822	44,968	50,753
Casein or lactarene ..... lbs...dut.	3,157,627	374,514	2,711,226	369,484	15,731,488	1,521,268	15,769,985	1,917,723
Kaolin, china, and paper clay.....tons..dut.	23,312	242,710	24,378	234,825	174,308	1,736,551	149,836	1,471,061

(*Continued on page 40*)

STRENGTH and SECURITY

WAYAGAMACK

KRAFT PULP

UNIFORM IN QUALITY—ESSENTIAL FOR STRENGTH

THE PULP and PAPER TRADING COMPANY

21 East 40th St., NEW YORK, N. Y.

Sole Sales Agents for United States for

CANADIAN KRAFT, Ltd. THREE RIVERS, CANADA

For Quality Papers Use

A-1 BLEACHED SULPHITE PULP

Mills at Borregaard, Norway

E-B BLEACHED SULPHITE PULP

Mills at Edsvalla, Sweden

VESTFOS EASY BLEACHING SULPHITE

Mills at Vestfossen, Norway

KRONSTÄDTER STRONG UNBLEACHED AND EASY BLEACHING SULPHITE

Mills at Turciansky Sv. Martin, Czecho-Slovakia

NENSJÖ NENSJÖ KRAFT **KRAFT PULP**

Mills at Sprangsviken, Sweden

J. ANDERSEN & CO.

21 East 40th Street NEW YORK, N. Y

Sole Agents for the U. S. A.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(*Continued from page 38*)

EXPORTS—PAPER

	June 1926 Quantity	June 1926 Value	June 1927 Quantity	June 1927 Value	Six Months Ending June 30 1926 Quantity	Six Months Ending June 30 1926 Value	Six Months Ending June 30 1927 Quantity	Six Months Ending June 30 1927 Value
Paper and manufactures (total)	.....	$2,138,190	.....	$2,537,484	.....	$13,448,153	.....	$13,866,981
Printing paper—								
News print paper ....lbs.	3,023,795	135,773	2,238,471	112,700	22,358,725	1,048,255	14,774,830	700,251
Exported to—								
Canada ....lbs.	86,708	6,188	154,840	11,927	679,840	48,993	1,761,833	112,912
Central America ....lbs.	103,188	4,309	40,387	1,790	849,051	38,339	344,278	16,978
Mexico ....lbs.	93,888	4,742	27,584	1,476	604,586	31,319	326,047	14,442
Cuba ....lbs.	675,496	32,161	572,927	27,214	4,076,245	178,885	2,849,656	133,323
South America ....lbs.	487,131	22,378	774,588	39,096	4,685,861	216,279	3,733,181	163,417
China, Hongkong, and Kwantung ....lbs.	509,090	22,498	25,793	1,713	4,666,742	216,703	314,913	18,764
Japan ....lbs.	153,316	6,625	9,437	446	1,823,018	81,548	67,984	4,048
Philippine Islands ....lbs.	762,558	31,311	513,225	21,444	3,840,964	179,548	4,508,552	180,769
Other countries ....lbs.	152,420	5,561	119,690	7,594	1,132,418	56,641	868,386	55,598
Book paper, not coated ....lbs.	1,266,345	156,115	1,501,829	128,790	8,251,454	829,121	7,868,345	682,334
Exported to—								
United Kingdom ....lbs.	144,916	41,743	500	58	226,336	50,984	192,894	14,249
Canada ....lbs.	221,158	22,029	611,983	43,319	1,907,999	179,594	2,062,457	166,186
Central America ....lbs.	47,903	5,174	24,068	2,169	336,241	37,155	159,013	15,640
Mexico ....lbs.	65,247	6,594	31,757	4,534	785,991	80,326	238,289	26,886
Cuba ....lbs.	177,879	15,473	171,068	15,295	1,131,221	104,655	1,001,603	87,574
Argentina ....lbs.	109,904	8,218	59,242	4,062	373,624	32,550	455,432	35,858
Other South America ....lbs.	171,630	18,978	82,002	8,326	846,765	88,148	1,088,994	80,683
China, Hongkong, and Kwantung ....lbs.	24,922	7,175	52,536	5,145	633,909	63,195	344,277	36,494
Philippine Islands ....lbs.	87,622	7,673	224,659	18,770	913,864	79,479	866,017	72,009
Australia ....lbs.	110,487	12,093	97,653	10,945	305,776	33,185	517,330	55,122
Other countries ....lbs.	104,677	10,965	146,361	16,167	789,728	79,850	942,039	91,633
Cover paper ....lbs.	67,870	15,045	100,320	19,967	671,067	121,005	782,142	137,777
Grease proof and waterproof paper....lbs.	188,112	32,314	235,256	34,852	1,231,447	185,750	1,292,259	183,281
Wrapping paper ....lbs.	2,623,489	172,149	3,057,326	211,698	16,723,543	1,169,663	15,910,596	1,143,150
Surface coated paper ....lbs.	443,465	48,837	629,211	73,340	3,605,079	424,928	3,617,455	443,698
Tissue and crêpe paper ....lbs.	406,374	93,221	319,505	84,314	1,962,782	497,465	2,041,525	473,677
Toilet paper ....lbs.	326,665	44,316	515,945	57,319	2,358,775	295,786	2,620,784	333,604
Paper towels and napkins ....lbs.	129,950	21,867	293,696	35,573	932,564	134,996	1,134,177	151,488
Box board ....lbs.	5,884,553	159,694	4,379,555	123,436	24,967,606	706,612	24,553,226	757,300
Bristols and bristol board....lbs.	94,228	12,017	88,315	10,881	722,616	92,071	1,091,432	96,724
Other paper board and straw board....lbs.	2,803,655	147,996	5,936,645	421,190	18,826,512	980,682	22,414,587	1,261,985
Sheathing and building paper....lbs.	918,871	37,048	840,781	36,736	5,343,090	233,246	6,634,841	271,660
Wall board of paper or pulp....sq. ft.	2,692,215	96,840	5,450,744	185,669	11,422,207	386,786	24,032,313	794,888
Blotting paper ....lbs.	376,550	42,364	266,261	30,976	1,799,059	226,064	1,695,122	194,349
Filing folders, index cards, and other office forms ....lbs.	80,006	23,234	80,344	21,653	454,101	127,289	563,467	150,868
Papeteries (fancy writing paper)....lbs.	38,173	11,900	58,523	16,835	257,932	89,053	311,391	78,365
Other writing paper ....lbs.	761,915	107,475	988,461	141,497	4,737,225	789,270	5,872,952	931,112
Paper hangings (wall paper)....yds.	668,050	18,161	1,073,669	24,158	14,972,572	354,398	15,349,548	341,437
Paper bags ....lbs.	729,080	68,227	620,670	54,798	5,864,598	526,911	6,503,907	557,882
Boxes and cartons....lbs.	1,238,521	104,821	2,298,906	146,696	9,506,260	677,350	11,389,881	763,325
Envelopes ....lbs.	224,009	42,272	176,749	29,322	1,316,430	245,351	1,310,289	226,261
Vulcanized fiber sheets, strips, rods, and tubes ....lbs.	430,430	128,664	333,709	101,170	3,059,614	877,030	2,350,785	707,277
Manufactures of vulcanized and indurated fiber ....lbs.	38,930	14,579	30,378	10,891	243,643	78,935	279,549	76,404
Cash register and adding machine paper....lbs.	146,813	14,856	158,842	18,228	900,274	94,002	833,712	90,893
Other paper and paper products	.....	388,405	.....	404,795	.....	2,256,134	.....	2,316,991

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ....tons	1,729	114,483	1,975	123,453	11,044	731,831	9,280	575,164
Soda wood pulp ....tons	38	3,432	263	23,111	902	79,484	1,118	98,325
Other wood pulp ....tons	653	32,999	139	8,851	3,991	422,530	1,849	67,976
Rags and other paper stock....lbs.	19,909,965	252,216	2,678,006	306,230	102,445,136	1,426,255	114,621,444	1,809,972

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery....lbs.	1,171,773	235,499	1,392,572	247,738	5,730,025	1,372,797	11,319,071	2,243,410

Industrial Accidents In New York

ALBANY, N. Y., August 22, 1927.—Pulp and paper manufacturers of New York State will be interested in a summary of the report of State Industrial Commissioner James A. Hamilton covering industrial accidents during the past year. According to the report nearly 99,000 workers were injured seriously enough to be disabled for more than a week. This is the approximate number of compensation cases in which closing awards were made by the State Department of Labor in the year ended June 30.

There were 1,042 workers killed at their work or died from injuries. This is a reduction of 68 fatal cases from the preceding year. Forty-one workers were totally incapacitated. More than 18,500 of the 99,000 workers were left with an injury that permanently handicapped them for future work.

Total compensation amounted to $28,186,000, almost half of this going in awards for amputation or loss of use of fingers, eyes, and other permanent partial disabilities. The fatal accidents cost $7,000,000 and temporary injuries cost about $7,000,000. The increase in five years for all industries has been seventy per cent but the increase in accidents in manufacturing was only fifty-one.

Pulp and paper mills of New York State have done much to reduce the number of preventable accidents among the workers by means of safety campaigns. Most of the larger mills have shop committees with all of the departments represented and these committees in all cases have the full support of the plant management and workers in their efforts to secure a high rating for their mills in the matter of accident prevention.

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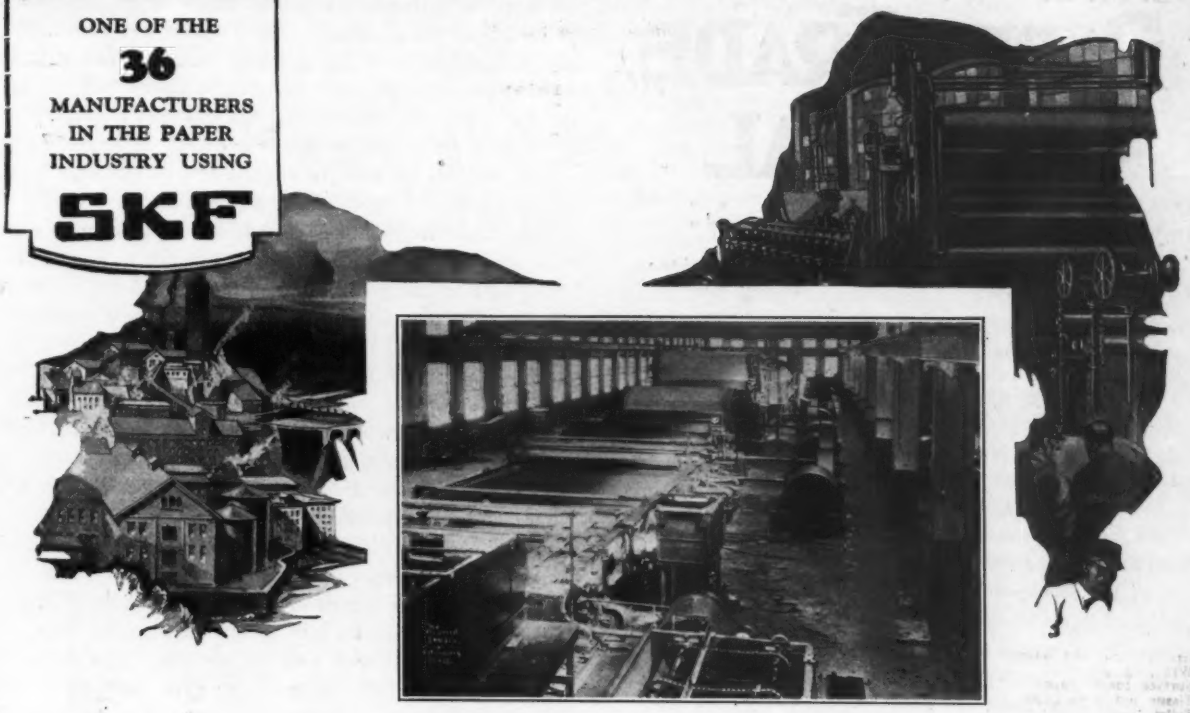

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PAPER EXPORTS INCREASE

A comparison of exports of paper and paper products from the United States during the first six months of the current year with those of the corresponding period of 1926 reveals a generally higher level in the volume of shipments but accompanied in most instances by reductions of 5 to 10 per cent and upward in the average value of the item in question, according to the Paper Division of the Department of Commerce. As a result of the latter condition, the value of the aggregate shipments, which amounts to $13,866,891, shows only a slight rise as compared with the first half of 1926.

Nearly all classes of paper shared in the increased demand on the part of our foreign customers, with fine papers, paper specialties, and boards showing proportionately the greatest gains. There has been a considerable shifting in the relative importance of the various items, however, outstanding examples being the advance of wall board shipments from twelfth place in 1926 to fourth during the current year, and the decline of news print and book papers from first to third places to sixth and ninth places, respectively. The last two products were superseded by paperboards and strawboards and writing paper.

Printing papers, as already noted, offer the most notable exception to the general upward trend in the United States' paper exports. Shipments of news print, which have been declining for some time, show a reduction of 35 per cent as compared with the first half of 1926, and while the fall in the volume of book paper shipments was considerably smaller the average lower price of the shipments brought about a decrease of more than 15 per cent in the aggregate value. Exports of surface-coated papers, while fluctuating considerably from month to month, were on the whole approximately the same as during the first six months of last year, a fall in the volume of shipments going forward during the last quarter being more than offset by increases in the previous three months. Contrary to most classes, the average value of exports of both news print and surface-coated paper was higher than during the same period last year.

Wrapping paper exports have held fairly steady at around 2,500,000 pounds to 3,000,000 pounds per month since the beginning of 1926. A slight downward trend has been perceptible from time to time, however, and shipments of miscellaneous wrappings during the first half of the current year have been slightly under those of either the preceding six months' period or the corresponding period of last year. Exports of greaseproof and waterproof papers have shown more variation from month to month. During the first quarter of the year shipments dropped 15 per cent under the first quarter of 1926, but this loss was later more than made up by the heavy increase in shipments during the succeeding three months, bringing the total for the first half of 1927 slightly above the amount for the corresponding period in 1926.

Paper bags also constitute a class in this group in which exports show a considerable rise and fall from month to month. Shipments were unusually heavy during the first quarter of the year but fell off 45 per cent during the succeeding three months. For the six months ended June 30, 1927, exports exceeded those of the corresponding period of 1926 by 15 per cent.

Exports of writing paper fluctuate considerably from month to month, but on the whole have kept to the high level which marked them during the preceding year. Shipments for the quarter ended June 30 exceeded any similar period during the past five years and was largely responsible for the increase of 25 per cent in shipments during the first half of this year as compared with 1926. Exports of papeteries show nearly as high an increase during this period, while exports of envelopes show little change.

Tissue and crepe papers sent to foreign countries during the first half of the year were only slightly larger than during the first six months of 1926. Larger gains were registered in shipments of toilet paper and paper towels and napkins, however, the former having risen 11 per cent and the latter 22 per cent during the same period.

The increase in shipments of filing folders, index cards, and other office forms was approximately the same as for writing papers. Cash register and adding machine paper, however, shows a loss of 7 per cent, and miscellaneous papers and paper products an increase of only 3 per cent.

Nearly all classes of American board enjoyed an increased demand abroad during the first six months of the year. Paperboard and strawboard (exclusive of box boards), as previously mentioned, now take first place in this group, shipments having increased 20 per cent in quantity and 30 per cent in value. A like increase was also registered in exports of boxes and cartons, although owing to the generally lower price at which shipments were made the value of these exports was only 13 per cent higher. An exception to the general upward trend has been shipments of box board in which a slight decrease is noticeable as compared with a year ago. A considerably heavier decline took place in exports of vulcanized fiber, which were nearly 25 per cent lower than during the first half of last year.

Proportionately the greatest increase occurred in exports of building papers and boards. Shipments of wall boards up to the end of June maintained the steady advance which has marked them during the past 18 months, exports for the six months' period exceeding the preceding six months by nearly 75 per cent and the corresponding period in 1926 by more than 100 per cent. While there has been a less notable increase in exports of sheathing and building papers, the latter are also considerably in advance of last year's shipments.

Imports of paper and paper products into the United States have been somewhat higher during the first six months of the current year than during 1926. Receipts of standard news print,

which represent between 85 and 90 per cent of the total paper imports, show an advance from 789,038 tons to 845,085 tons. Imports of this class from Canada, which is our principal source of supply, were larger by 45,804 tons, or 6 per cent. Increased amounts were also received from Sweden and Norway.

Imports of other items in this group, which reached an aggregate value of close to $9,000,000, were greater by nearly 20 per cent. The largest increase was registered in imports of cigarette papers, which account for more than one-fourth of the total value, and which more than doubled as compared with last year. Increased amounts were also received of surface-coated paper, tissue paper, miscellaneous boards, and boxes. Of the remaining important items, other printing paper imports fell off by 40 per cent, wrapping papers and pulp boards by 25 per cent, and writing papers by 20 per cent.

There was a slight decline in the total imports of paper base stocks during the first part of this year, largely owing to the heavy reduction in incoming shipments of mechanical ground wood and waste stock. Imports of pulp wood increased by 40 per cent, but the heavy gain in this line was insufficient to offset decreases of 25 per cent in receipts of mechanical ground wood and rags, and 30 per cent and 40 per cent, respectively, in receipts of waste paper and bagging, and old rope and similar stock. There was also a slight decline in receipts of chemical pulps, imports for this period amounting to 427,193 tons of sulphite and 153,814 tons of sulphate as against 440,003 tons of the former and 157,921 tons of the latter during the first half of 1926.

News Print Production for July

Production in Canada of news print according to the News Print Service Bureau during July 1927 amounted to 162,564 tons and shipments to 159,843 tons. Production in the United States was 118,929 tons and shipments 119,940 tons, making a total United States and Canadian news print production of 281,493 tons and shipments of 279,683 tons. During July, 16,876 tons of news print were made in Newfoundland and 736 tons in Mexico, so that the total North American production for the month amounted to 299,105 tons.

The Canadian mills produced 103,443 tons more in the first seven months of 1927 than in 1926, which was an increase of 10 per cent. The United States output was 90,387 tons or 11 per cent less than for the first seven months of 1926, that in Newfoundland 34,145 tons or 34 per cent more, and in Mexico 1,207 tons or 17 per cent more, making a total North American increase of 48,408 tons or 2 per cent.

During July the Canadian mills operated at 80.5 per cent of rated capacity and the United States mills at 81.5 per cent. Stock of news print paper at Canadian mills totalled 32,282 tons at the end of July and at United States mills 27,764 tons, making a combined total of 60,046 tons which was equivalent to 4.4 day's average production.

Hawley Pulp & Paper Co. To Build Warehouse

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 12, 1927.—The Hawley Pulp and Paper Company has let the contract for a warehouse to be built in Portland, at East Main street between Second and Third streets. This will be a one-story structure costing approximately $60,000 and will be planned especially to store print paper for distribution to the Portland market. The building will be 100 x 200 feet in dimensions and it is expected that work will be completed by November 15. The Hawley Pulp and Paper Company's plant is in Oregon City. W. P. Hawley is president of the company.

James Lowe Retires

James Lowe, president and treasurer of James Lowe & Sons, which concern for about the past eight years has been operating a wrapping paper mill at Freeland, Md., announces his retirement after about sixty years spent in the paper business.

The concern of James Lowe & Sons was succeeded a few weeks ago by Darby & Lowe. The officers are S. D. Darby, president and secretary, and Frank Lowe, treasurer and superintendent. The new concern will continue to operate the plant on the same line of production as heretofore.

Mr. Lowe was born in Lancashire, England, 72 years ago. He is one of the old line of paper makers of whom there are not many left. He learned all departments of the business thoroughly before becoming a full fledged paper maker. He first came to the United States forty-five years ago, having previously worked in the paper mills of England since his early youth. After working in the paper mills of this country for seven years he returned to England and worked for 22 years in the business of paper making. At the end of this time he came back to the United States, where he has made his home since.

Mr. Lowe estimates that he has worked in sixteen or eighteen paper mills of various types and sizes. He was employed for quite a number of years in the well known paper plants of Kellner, Partington & Co., in England, and his connection in this country was principally with the Diamond Mills Paper Company, prior to going into business for himself. He was engaged for sometime in the manufacture of artificial tobacco or tobacco paper in Brooklyn and New Milford, Conn. It will be remembered that this had quite a vogue a few years ago.

Mr. Lowe has two sons, Arthur and Frank, who like himself, are practical paper makers in every sense of the word. Arthur Lowe has been superintendent of a number of representative paper mills and is at present connected with the Dilts Machine Works of Fulton, N. Y., doing promotional work for the well-known beaters of this concern in the Eastern territory. Frank Lowe has been for a number of years connected with his father in the operation of the mill at Freeland and, as already mentioned, remains as treasurer and superintendent with Darby & Lowe, which concern succeeds to the ownership of the mill.

Mr. Lowe has not amassed any great fortune but he has been frugal and industrious throughout his long life and he will retire to Freeland with an adequate competency at least, to spend the remainder of his days.

Foreign Pulp Comes Over Champlain Canal

FORT EDWARD, N. Y., August 15, 1927.—Among the shipments received at the local terminal of the Champlain barge canal during the past week was a large boatload of foreign pulp imported by the Union Bag and Paper Corporation, of Hudson Falls. The pulp was shipped to New York on an ocean going steamer and transferred at that point to barge to be brought up the Hudson River and through the canal to Fort Edward. It will be used at the Fenimore mill of the Union Bag Corporation in Hudson Falls.

The barge is now being unloaded by employees at the local terminal and transferred to motor trucks which are being used to haul the pulp from Fort Edward to Hudson Falls.

The arrival of this shipment aroused considerable interest as shipments of foreign pulp are not common at the local barge canal terminal. It also marked the entrance of the Union Bag and Paper Corporation into the ranks of canal shippers. Practically every one of the paper concerns in Glens Falls, Hudson Falls and Fort Edward have been using the waterway more or less during the present season both for incoming and outgoing shipments.

Swedish News Print Production

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 24, 1927.—Swedish news print production for June amounted to 12,806 metric tons, bringing the total for the first six months of the current year up to 93,441 tons.

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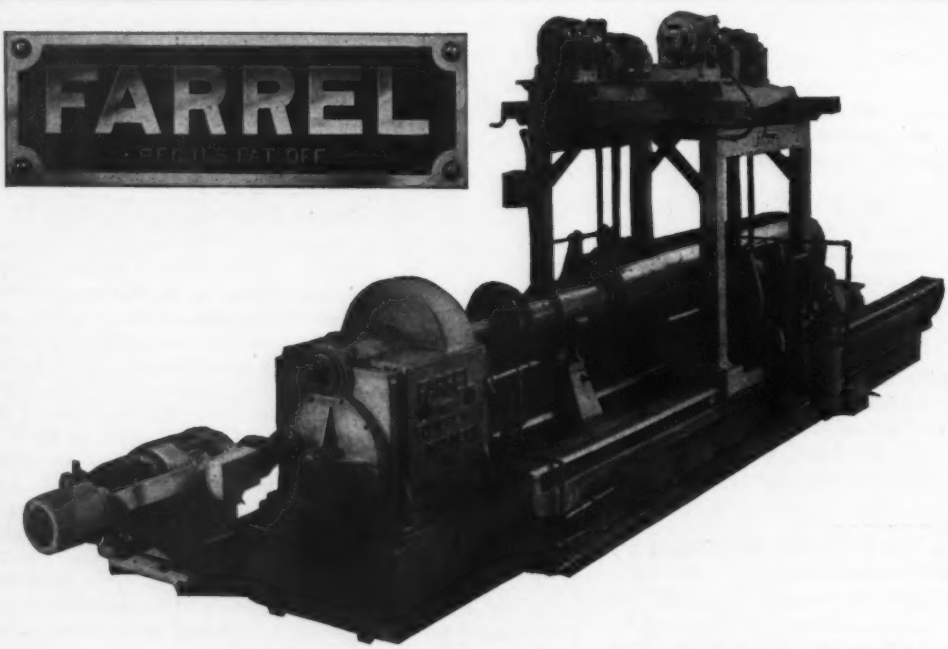

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Conducted by W.G. MacNAUGHTON, Secretary

Sulphur Recovery From Relief Gases And Liquor

(Review of U. S. Patents)

The problem of the recovery of valuable constituents from used sulphite liquors is one of the most important with which the sulphite pulp industry is faced at the present time. Though it has attracted considerable attention, little progress has been made in the utilization of sulphite waste liquor. Geo. A. Richter, chemical engineer with the Brown Company, of Berlin, N. H., has tackled the problem from the standpoint of recovering as much sulphur as possible from the partly used liquor and from the gas which are relieved from the digester during the cook, thereby reducing the sulphur consumption in the manufacture of sulphite pulp, and incidentally obtaining a very strong sulphur dioxide gas which enables him to build up the strength of his cooking acid quite easily. For this process he has been granted United States patents No. 1,599,488, of September 14, 1926, and No. 1,616,703, of February 8, 1927.

No. 1,599,488.

The main object of this invention is to recover from the relief liquor any remaining traces of free sulphur dioxide, sulphur combined as calcium or magnesium bisulphite, and also the sulphur which is in unstable combination with the lignin constituents of the liquor.

On the drawing (Fig. 1), the digester is indicated at (1), the blow pit at (2), and at (3) is a tower for condensing the vomit stack gases and recovering sulphur dioxide therefrom. From the upper portion of digester (1) lead the valved pipes (4) and (5) which discharge the relief liquors and gases into a separator (6), where the greater portion of the gas is separated from the liquor. The gas, which flows from this separator through the pipe (7), is cooled by a cooling apparatus (8), and is delivered into the lower end of the tower (9), which is provided with inert spiral brick or other inert filling material (10), the purpose of which will be subsequently explained. The burner gas is brought by pipe (11) to the acid towers, which are represented as a two-tower system, the first tower being indicated at (12) and the second tower at (13). The sulphur burner gas is delivered at the lower end of the first tower (12), which is provided with spiral brick or the like; in passing upwards through the tower, the gas is caused to flow in counter-current through trickling streams of liquor delivered to the top of the tower. The unabsorbed gas is led from the top of tower (12) through pipe (14) to the bottom of tower (13), which is likewise provided with spiral brick or the like, the tail gas from this tower being vented through a large pipe (15).

Water is sprayed into the top of the second tower (13) through the water pipe (16), and in passing down through the material it is acidulated by the rising flow of sulphur dioxide gas. This acidulated water is delivered through a valved pipe (17) to a mixing tank (18). From the mixing tank the liquor flows through the pipe or conduit (19) to a pump (20), by which it is forced through pipe (21) to the top of tower (12), and is sprayed so as to pass down through the packing in the tower. From the bottom of the tower the liquor passes through pipe (22) to pump (23) which forces it to the top of tower (9), so that it may pass down through the packing material with which it is filled. The liquor delivered through pipe (25) from tower (9) is the finished acid, which contains the maximum quantity of free sulphur dioxide.

Below separator (6) is a surface separator or scavenger tank (27), filled with inert filling material (28). Relief liquor from the separator (6) passes down through the valved pipe (29) to a spray head (20'), and passes through the interstices of spiral brick or the like into tank (27) and is delivered through pipe (29) to a mixing or reaction tank (30). From here the liquor passes through pipe (31) to thickener (32), from which it is delivered by pipe (33) to rotary filter (34); the filtrate passes out through outlet and the precipitate is scraped by a doctor from the screen (35) and passes down through conduit (37) to mixing tank (18). This mixing tank is provided with agitators and may be equipped with cooling coils (38).

The reaction tank (30) is provided with an agitator (42), the shaft (43) of which is provided with pulley (44) by which it may be rotated. To this reaction tank is delivered, by means of a suitable conveyor (45), measured quantities of calcium carbonate.

Before delivering the relief liquor to the reaction tank into which finely divided calcium carbonate is delivered by conveyor (45), as much free sulphur dioxide as possible is removed from the relief liquor by sweeping it therefrom by tail gas from the second tower (13) of the acid system. For this purpose, a portion of such tail gas is pumped by pump (46) through pipe (47) which communicates with the tail gas pipe (15), the pumped gas being delivered into the lower end of surface separator (27). In passing up through the separator, the tail gas removes the greater part of the free sulphur dioxide, which passes through pipe (48) and is delivered preferably to pipe (14) so as to be carried with the gas from tower (12) to the lower end of tower (13).

The relief liquor which passes from the surface separator (27) still contains traces of free sulphur dioxide and in addition some calcium bisulphite, and it also contains sulphur which is loosely combined with the ligneous incrustants removed from the wood during the cooking. The liquor, after passing through the surface separator, contains about 0.8 per cent of total sulphur, of which about 60 per cent is recoverable in the succeeding operation.

The relief liquor from the surface separator (27) passes into the reaction tank (30) to which is delivered calcium carbonate in

pulverulent form. The calcium carbonate reacts with the sulphur, forming calcium monosulphite, which is insoluble. The relief liquor as it is delivered to the reaction tank is at a relatively high temperature, approximately 180 degrees F., so that the reaction takes place very rapidly. An excess of calcium carbonate is supplied over that required for combination with the sulphur, the excess depending on the amount of total calcium required for the formation of the raw acid in the acid system. The products of the reaction, together with the remaining relief liquor and the excess of calcium carbonate, pass to the thickener or settling tank (32). The overflow from the thickener may be carried to the sewer by pipe (50), while the thick suspension passes to filter (34), and the precipitate, consisting of approximately equal amounts of calcium monosulphite and calcium carbonate, which is scraped from screen (35) is delivered to agitator tank (18).

In the operation thus far described practically all of the organic constituents of the relief liquor pass from the thickener with the overflow and are wasted into the sewer, so that practically all of the sulphur and lime are separated therefrom and delivered to the agitator tank free from organic matter. This insures against the dilution or contamination of the acid liquor used in the digester.

The calcium carbonate and calcium monosulphite delivered to mixing tank (18) come in contact with the acidulated water delivered from tower (13) and are converted into calcium bisulphite. It will be recalled that the liquid delivered to the top of this tower is water only, and that, as the water passes down through the tower, it is acidulated by the gas delivered from the tower (12) as well as by the gases delivered from the surface separator (27). The gas from the surface separator contains about 3 or 4 per cent by volume of sulphur dioxide, and the tail gas from tower (12) contains about 10 per cent. This mixture of gas, however, does not greatly dilute the gas delivered from tower (12), since the volume of gas in the surface separator is relatively small. In the event that the volume of gas from the surface separator should be such as to materially decrease the strength of the gas entering the lower end of tower (13), there is provided a by-pass (51) leading from the sulphur burner gas pipe (11) to the lower end of tower (13).

The clear liquor from mixing tank (18) is delivered to tower (12), where it comes in contact with the burner gases and is brought to a strength of about 2 per cent free sulphur dioxide and 1 per cent combined. The calcium carbonate initially delivered to reaction tank (30) is in sufficient quantity to react with calcium bisulphite in the relief liquor and form monosulphite and also to react with the acidulated water from tower (13) in proper proportions to provide the desired combined sulphur dioxide content in the raw acid. The raw acid from tower (12) is pumped by pump (23) to the top of tower (9), where, in passing down through the inert packing material, it meets the rising stream of strong gas from the first separator (6), at a strength of from 90 to 100 per cent sulphur dioxide, and is fortified to a strength of from 5 to 6 per cent free sulphur dioxide and about 1 per cent combined. This liquor is clear and contains only traces of organic matter: it is the finished cooking acid.

When the system is first started in operation, the finished acid delivered from tower (9) contains approximately 4 per cent free sulphur dioxide, but as the digester and the system continue in operation, the strength of the finished liquor in sulphur dioxide increases until it reaches a maximum of 6 to 6.5 per cent, depending on the temperature of the finished acid leaving tower (9). The tail gas from tower (9) is still fairly rich in sulphur dioxide, containing about 15 per cent, and it is delivered by tail gas pipe (54) to the burner gas pipe, so that it may mix with the burner gases, being of practically the same strength as the latter.

An important advantage of this process is the ease with which the strength of the acid liquor, as regards both free and com-

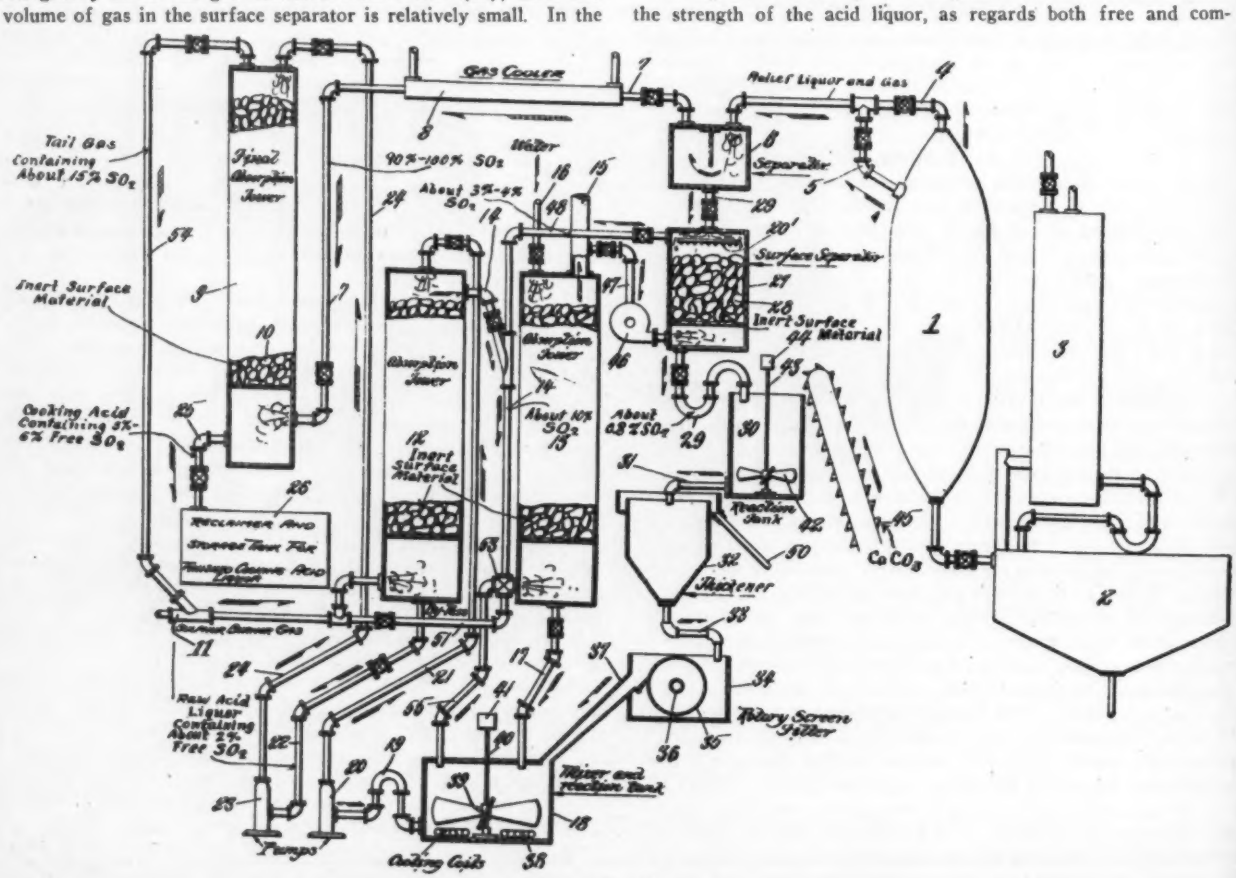


FIG. 1

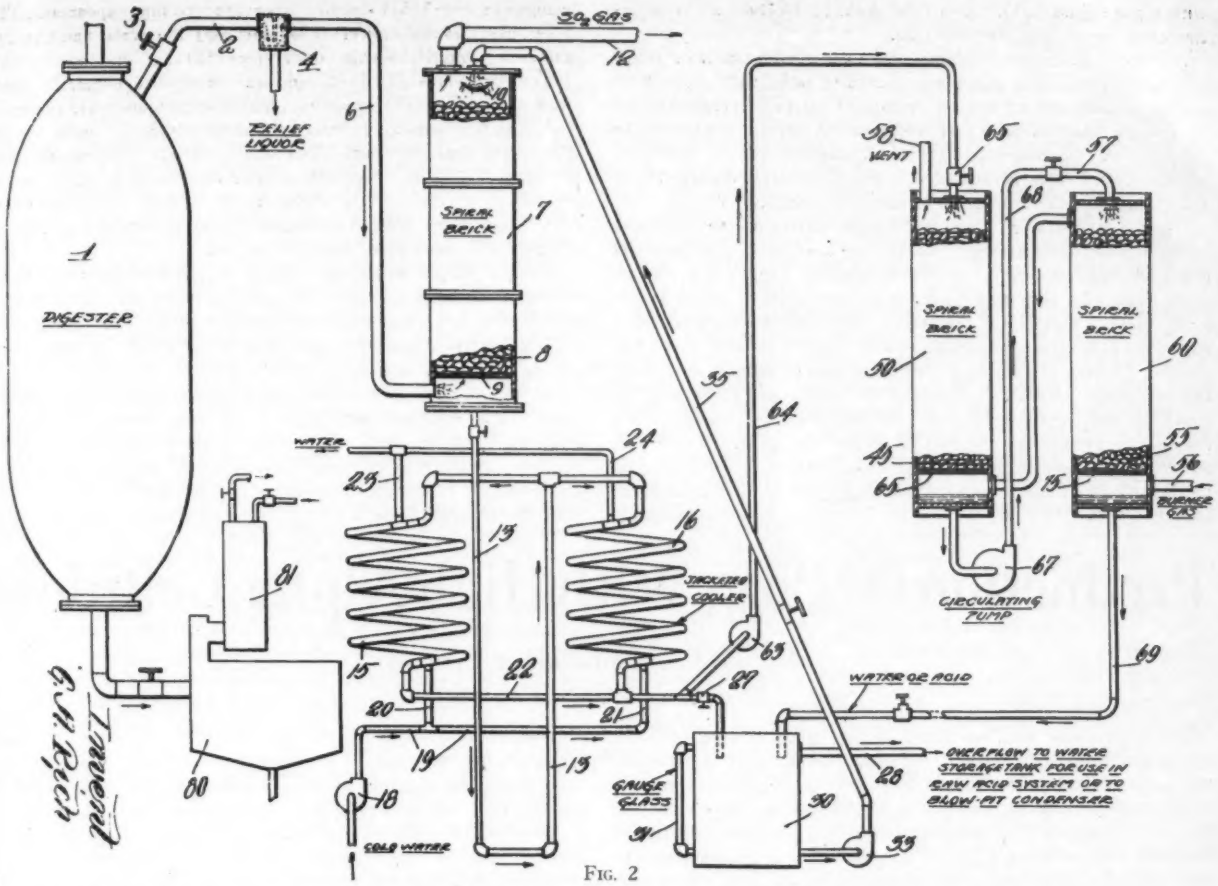


FIG. 2

bined sulphur dioxide, can be controlled, since the relative proportions of water fed to tower (13) of calcium carbonate delivered to mixing tank (18) and of gas from the sulphur burner or from the separator, can easily be regulated.

No. 1,616,703

The primary object of this invention is the efficient and economical cooling of the relief gases from the sulphite digesters; while a secondary object is to utilize the heat content of the relief gas in making available a large volume of highly concentrated sulphur dioxide for the fortification of the raw acid to a high free sulphur dioxide cooking acid.

The principle of the process consists in cooling the relief gases by passing them through a tower filled with inert packing material, such as spiral brick or field rock, in contact with and in counter-current flow to cold water. The cold water cools the relief gas and condenses out substantially all the steam therein, so that a cool gas containing a very high per cent of sulphur dioxide emerges from the top portion of the tower and a hot effluent which contains a comparatively small amount of dissolved sulphur dioxide passes out from the bottom of the tower. The dissolved sulphur dioxide in the effluent water from the tower is not lost. Provision is made for re-employing the effluent, by first cooling it in a relatively small surface cooler and then re-circulating it through the relief gas cooling tower.

The equipment required for carrying out the process is represented diagrammatically in the accompanying figure. Fig. 2.

In the drawing (1) represents the usual digester, at the lower portion of which is the blow pit (80) and above the latter is a direct condenser (81) which serves as a part of a recovery system by which sulphur dioxide is recovered from blow pit vapors and gases. At the top of the digester is the relief pipe (2) with valve at (3) provided with separator (4) to trap any entrained liquor contained in the relief gas. From separator (4) the gas passes through a conduit (6) into the bottom of a cooling tower (7) made of the usual acid-resistant materials and filled with inert packing material (8) which is supported on the perforated partition (9. As it passes up through the tower, the gas meets a down-flowing stream of cool water, introduced at the top of the tower, and distributed by distributor (10). In this way the gas is cooled and any water which it contains is condensed, and a cool gas consisting of practically pure sulphur dioxide near the temperature of the entering cooling liquid is drawn off from the top of the tower through a conduit (12) for use in the fortification of raw or intermediate acid liquor to its cooking strength.

The cooling liquor is heated during its downward passage by the hot relief gas, and falls to the bottom of the tower, from which it is conducted to a liquor cooling system by the valved U-shaped pipe line (13). The U-shaped delivery pipe to the cooler acts as a gas seal, and prevents entrance of relief gas into the cooling system.

The liquor-cooling system consists of two coil-coolers (15) and (16), of the double-pipe type, arranged in parallel. The hot effluent from the tower is passed through the inner pipes of the coolers and is cooled by passing cooling water in counter-current flow thereto through the outer pipe, around the inner concentric pipe. The cooling water is pumped by pump (18) through a pipe (19) and divides into two branches (20) and (21), which enter the coils (15) and (16) respectively, at the points of exit of the cooled effluent from the coolers, the heated cooling water leaves the coolers through the exit water pipe lines (23) and (24) at the points of entrance of the hot effluent into the coolers and entering a discharge pipe line (24). The cooled effluent from both coils is passed through a pipe line (22) valved at (27) and discharged into a relatively small wooden head-box (30) provided

with a gage glass (31). It is now again in a condition to be re-employed for cooling the relief gas.

If there is an excess of liquor due to the condensation of steam contained in the relief gas which is carried along with the effluent cooling liquor, this excess tends to rise above a predetermined level in the headbox (30) and is drawn off through overflow pipe (28) and may be mixed with the water used in the preparation of raw acid, or it may be passed into the blow-pit condenser tower (81) and the sulphur dioxide content recovered.

When it is desirable to utilize the heat content of the relief gas in making available a larger quantity of concentrated sulphur dioxide for the fortification of raw acid liquor, the cooling effluent is enriched with sulphur dioxide, as by saturating it to the maximum sulphur dioxide concentration obtainable with burner gas, and then passing the enriched effluent back into the relief gas cooler. The system for producing the enriched effluent comprises two absorption towers (50) and (60) which are preferably of equal size and are filled with inert packing material (45) and (55) supported on the perforated partitions (65) and (75). Cooled and more or less purified sulphur burner gases are introduced into the lower end of one of the towers, as (60) under sufficient pressure to produce a flow of gas, by a fan blower (not shown) through a pipe (56) leading from the cooling apparatus. The gases pass through towers (50) and (60) in series, and the tail gases are vented through outlet pipe (58) at the top of tower (50). The valve (27) is closed and the cooled effluent is introduced into tower (50) by pump (63) through pipe (64), valved at (65), and is caused to flow in counter-current contact to the flow of the gases through the towers in series. The cooled effluent, saturated to its maximum sulphur dioxide content, falling to the bottom of tower (60) is conducted through valved pipe line (69) to head box (30) from which it may be pumped to the top of tower (7) for cooling other relief gas.

The first advantage of this system is that a cheaper and more efficient gas cooler, entailing no loss of sulphur dioxide is substituted for a large and expensive surface condenser. The gas is easily cooled to a temperature within 10° or 15° F. of that of the cooling liquid entering the top of the tower.

The second advantage is that a substantial portion of the burner gases can be enriched from 14 or 15 per cent sulphur dioxide to from 90 to 100 per cent. By fortifying the effluent as described, the heat contained in the relief gas allows of making the cooking acid from 0.2 to 0.4 per cent higher in free sulphur dioxide than when the effluent liquor is not saturated with burner gas.—A. P.-C.

Production Of Pulp With High Alpha-Cellulose

Brown Co. Alpha-Fiber Process
(Review of U. S. Patents)

The Brown Company, of Berlin, N. H., some time ago put on the market its "Alpha Fiber," containing 94 per cent or more of resistant or alpha-cellulose, which is suitable as a substitute for cotton in paper making, and in the preparation of cellulose esters, cellulose ethers and other compounds which require the use of substantially pure cellulose. To our knowledge, however, nothing has been published concerning the process whereby this high-grade pulp is obtained.

In this connection two interesting patents were recently issued by the United States Patent Office, both of which have been assigned by the patentees to the Brown Company. They are No. 1,599,489 issued September 14, 1926 to Geo. A. Richter and Milton O. Schur and No. 1,602,553, issued October 12, 1926 to Geo. A. Richter.

No. 1,599,489.

High alpha-cellulose fiber can be produced by cooking unbleached pulp with an alkaline cooking liquor, caustic soda solution being particularly suited for the purpose, and then bleaching, the cooking being preferably carried out in open tanks at atmospheric pressure. If milk of lime is substituted for the more expensive caustic soda liquor, the resultant product is much more difficult to bleach without excessive quantities of bleaching agents in order to obtain the required whiteness, a large amount of bleach is necessary, resulting in a material decrease of the alpha-cellulose content and also reducing the strength of the fiber.

The inventors have found that the necessity for the use of excessive bleach may be avoided by treatment of the fiber before the lime digestion with a small quantity of oxidizing agent, preferably chlorine. This preliminary treatment is in no sense a bleaching process, for the pulp is not at all whitened thereby; as a matter of fact, the partially oxidized impurities usually impart a reddish color to the fiber.

Sulphite pulp, for example is treated with a chlorine solution containing about 0.3 to 1.5 per cent. of chlorine, based on the weight of the fiber. The chlorine reacts with and forms compounds with a portion of the lignin and other coloring matters, rendering these more susceptible to the action of the lime cooking liquor. It is important that only a small quantity of oxidizing agent be used in the preliminary treatment, for if the pulp is sensibly bleached at this stage the alpha-cellulose content of the final product will be low and the pulp not so well suited as a substitute for cotton fiber in paper making or for conversion into cellulose esters. The reaction with a small quantity of oxidizing agent is a selective one, the more resistant alpha-cellulose being apparently unaffected, and is very rapid, the chlorine uniting with the coloring substances within a few minutes at room temperature. The pretreated pulp is then subjected to the action of milk of lime and is boiled under conditions similar to those employed in the caustic solution process, where an open tank may be used. The beta- and gamma-cellulose constituents and the coloring substances contained in the pulp are removed therefrom by reaction with the lime solution, fresh lime from the milk of lime going into solution as the dissolved lime is consumed in the reaction. The lime is effective in the removal of the beta- and gamma-celluloses and also reacts with the coloring matter and reaction-products resulting from the chlorine treatment. The resulting pulp is equal in quality to that obtained by a direct caustic soda solution cook, and requires about the same small quantity of bleach to produce a very white, high alpha-cellulose stock.

Another very important advantage may be obtained by the chlorine pretreatment, namely, the wood chips may be slightly under cooked in the digesters, resulting in a stronger fiber. The pulp thus produced would ordinarily be more difficult to bleach, owing to the fact that it contains a higher proportion of lignin; but the quantity of oxidizing agent used in the pretreatment may be increased so as to react with the additional amount of lignin resulting from the under-cooking. The pretreated pulp is then subjected to the lime cooking and upon bleaching yields a very white alpha-cellulose fiber of high tear test, folding endurance and bursting strength.

A specific example of the process is approximately as follows: After wood chips have been digested in a suitable liquor (either acid or alkaline, but the process is particularly advantageous with sulphite pulp), the digester contents are blown, (slightly undercooked if so desired) and the pulp washed, screened and delivered to the open digesting tanks. The pulp is treated in the tanks at a density of about 5 per cent and at room temperature with a chlorine solution containing 0.3 to 1.5 per cent chlorine based on the weight

of the dry fiber, the chlorine reacting with and being consumed by the ligneous matter in the pulp within a few minutes. The pulp is now washed clean of reaction products, dewatered to a consistency of about 16 per cent, and transferred to the cooking tanks. Milk of lime is then added until a 10 percent pulp suspension is obtained, there being present about 6 to 9 percent of reactive calcium oxide, based on the bone-dry fiber weight. The suspension is brought to about 200° to 212°F. by blowing live steam into the open tanks, and is thoroughly agitated at this temperature from 5 to 8 hours, depending on the characteristics of the particular sulphite pulp undergoing digestion. The less resistance beta- and gamma-cellulose and the reactive ligneous and other coloring matter react with and are effectively removed from the pulp by the lime. After the digestion the stock is washed clean of the reaction products in the usual manner. The stock leaving the cooking tanks has approximately the following characteristics:

Alpha cellulose	94+%
Fiber length	0.9 to 1.1 mm.
Copper number	1.4 to 2.0

The usual amount of bleach in the subsequent bleaching operation gives an alpha-cellulose fiber of high whiteness, 95 to 100 on the color-scale in use at the Brown Company's laboratory; and the whiteness on the same scale may be increased to 100 to 110 by a super-bleaching operation, in a chlorine solution, without loss in alpha cellulose content.

No. 1,602,553.

In accordance with this invention, sulphite pulp is subjected to a treatment with black liquor resulting from the alkaine digestion of wood or other vegetable material. The accompanying flow-sheet shows diagrammatically the apparatus in which the process can be carried out. (Fig. 3.)

The purpose of this treatment is to remove the greater portion of the less resistant cellulose (beta- and gamma-celluloses) as well as the removal of lignin, resin and pentosan contained in the pulp, these constituents being dissolved in the alkaline solution together with the greater portion of the less resistant cellulose. The presence in the black liquor of organic constituents removed from the wood during the alkaline digestion in no way interferes with the dissolving and removal of the less resistant cellulose, lignin, resins and pentosan from the sulphite pulp; and the temperature of the black liquor is sufficient to effect rapid solution of the unwanted constituents of the sulphite. If desired, however, means may be provided for heating the pulp during this treatment with black liquor.

In addition to producing a pulp characterized by a very high alpha-cellulose content, the process possesses the following advantages. By utilizing a portion of the black liquor delivered from the alkaline digestion in supplying the alkali necessary for treating the sulphite pulp, there is a marked conservation of heat inasmuch as the black liquor delivered from the blow pit and the washer (7) is at a high temperature, so that but little heat is required in the digestion of the sulphite to maintain it at the same or even at a higher temperature. Furthermore, the alkali required in the digestion of the sulphite does not represent a loss of chemical constituent, as this alkali is subsequently recovered. Moreover, the liquor which is returned from washer (11) has been enriched in organic constituents which are combustible and which therefore increase the combustible characteristic of the original black liquor. Consequently, inasmuch as the black liquor which is now fed to the combusion retort has an increased quantity of combustible matter, it allows a more complete reduction of sodium sulphate in the event that it is desired to produce sulphate or kraft pulp.—A.P.-C

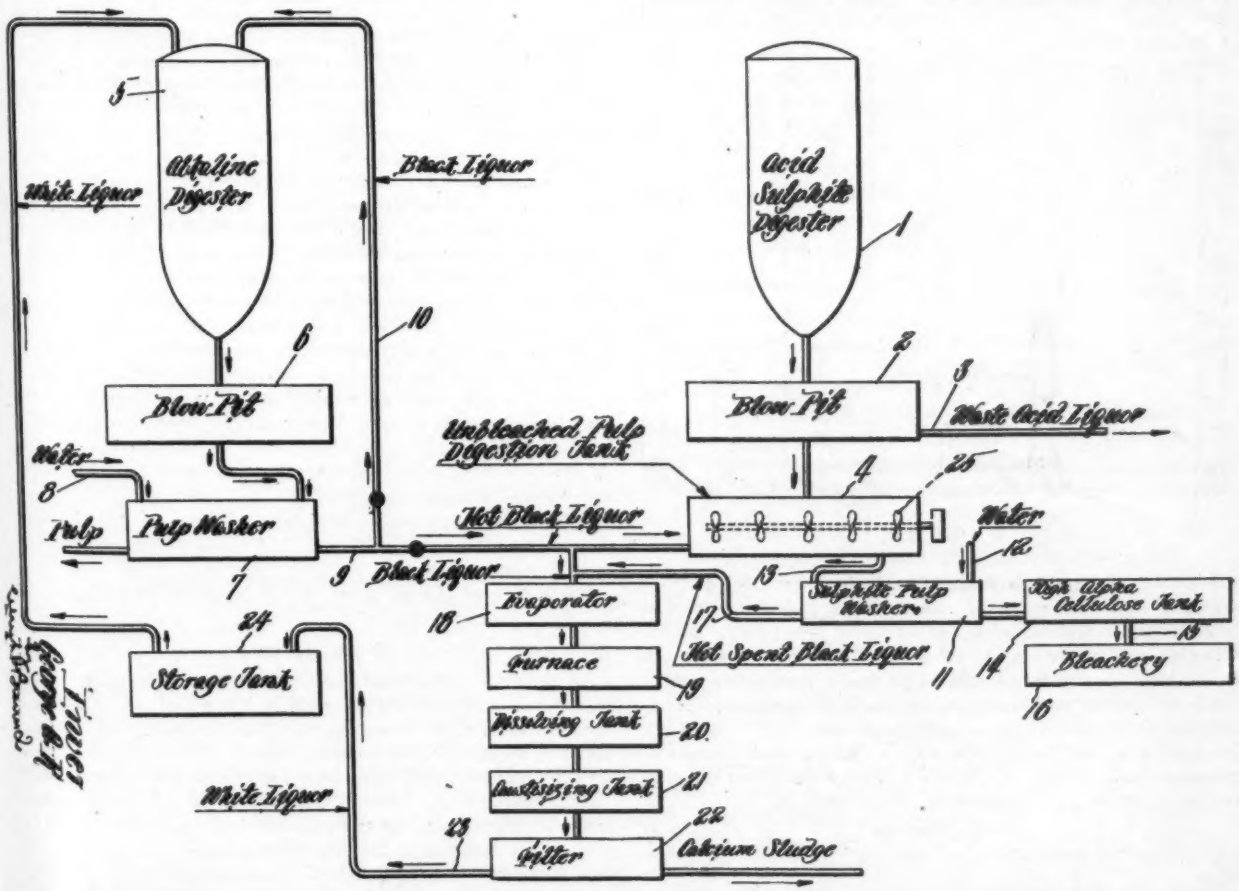


FIG. 3.

Constant Humidity Testing Room

By H. T. Ruff

In order to eliminate the effect of varying relative humidity on physical tests for pulp and paper, a small constant humidity-constant temperature room has been developed in the laboratories of the Mead Pulp and Paper Company, at Chillicothe, Ohio. This room was designed to give satisfactory regulation at a cost that would not be considered prohibitive. Our room has been in use for about two years, and in the last year several rooms modelled after this one have been constructed by other mills.

General Construction of Room

The inside dimensions of this room are 9 by 9 and 7 feet in height. This size permits two men to use it at the same time. However, we would recommend building the room at least equivalent to 10 by 10 or 12 by 12 feet if possible. Larger sizes would probably be beyond the capacity of the air conditioning apparatus used, unless the walls were unusually well insulated.

The walls, ceiling and floor are double construction. ¾ inch tongue and groove sheathing is applied to both sides of the 2 x 4

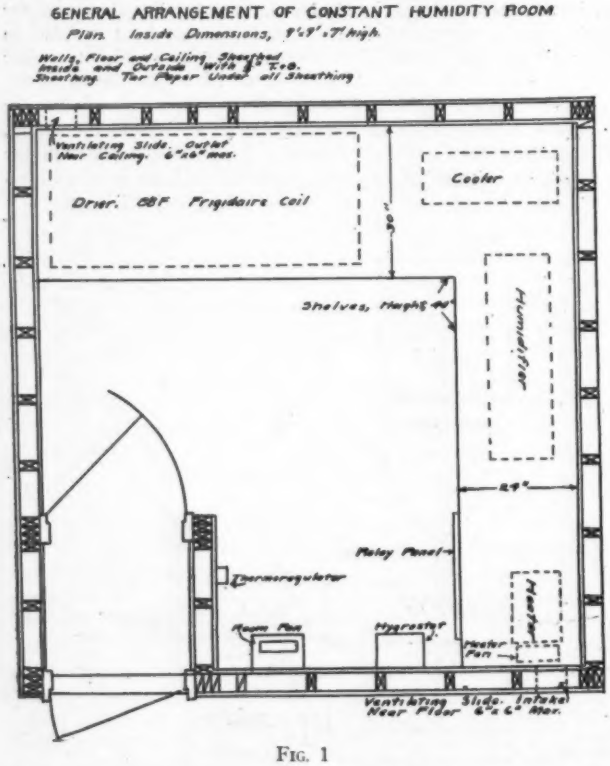

GENERAL ARRANGEMENT OF CONSTANT HUMIDITY ROOM
Plan. Inside Dimensions, 9'-9" x 7' high.
Walls, Floor and Ceiling Sheathed Inside and Outside with 1" Tee. Sheathing. Tar Paper Under all Sheathing
Ventilating Slide. Outlet Near Ceiling. 6"x6" min.
Drier. CBF Frigidaire Coil
Cooler
Shelves, Height 4'-0"
Humidifier
2'-9"
Relay Panel
Thermoregulator
Room Fan
Hygrostat
Heater
Heater Fan
Ventilating Slide. Intake Near Floor 6"x 6" Min.

FIG. 1

inch frame. Tar paper is used under all sheathing. At least one thickness of insulating board, such as masonite, celotex, insulite or corkboard is recommended.

Double windows and doors are used. The inside of the room should be well varnished or painted, to render it as nearly waterproof as possible, and hence prevent lag in humidity regulation. Indirect illumination from a skylight is preferable. Working benches are provided along two walls. The air conditioning apparatus is placed under these benches. Figure one shows the general construction and arrangement of the room.

Control System

Humidity and temperature are controlled independently. Humidifying, dehumidifying and cooling are controlled by fans which force room air over appropriate apparatus. The fans are operated through relays connected to the hygrostat or to the thermoregulator. Fig. 2 is the wiring diagram.

Hygrostat (Fig. 3)

A very satisfactory and inexpensive hygrostat was constructed from an old balance. If it is necessary to purchase such a bal-

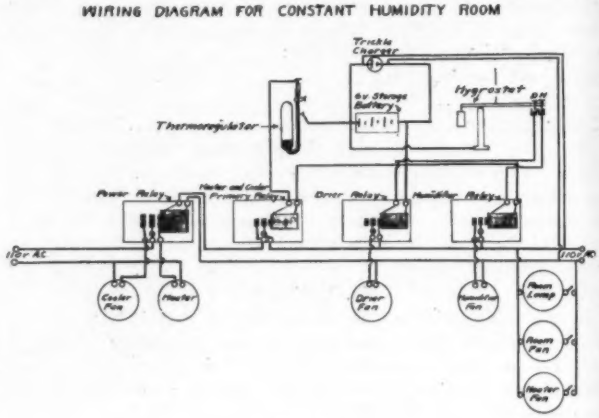


FIG. 2

ance, one having a sensitivity of about one centigram is desirable, which need not cost more than about $6.

The regulator is operated by a silk thread about 36 inches long. The top fastening for the thread is adjustable permitting the regulator to be set at any desired humidity without disturbing the contact adjustments. Two wire-mercury contacts are provided, one for the drier and one for the humidifier, thus making it possible to obtain any desired lag between the operation of the drier and of the humidifier. The contact cups may be placed on one side of the center post as shown, or on opposite sides. Under average conditions the drier or the humidifier operates intermittently, but not alternately. This arrangement materially reduces the load on both drier and humidifier. The sensitivity of this hygrostat makes the arrangement entirely practical.

Either platinum or nichrome wire may be used for contact points. The mercury cups should have an inside diameter of at least ⅜ inch. This gives a flatter mercury surface, and a slight beam shift does not disturb the adjustment. The mercury surface should be cleaned about once a week. If metal cups are used they should be made of steel.

This regulator is sensitive to about ± 0.2 per cent relative humidity. Actual room operation to ± 1 per cent relative humidity is easily obtained.

The thread of the regulator should be placed so it is not in the direct path of a fan.

Thermoregulator

An ordinary mercury-toluene thermoregulator is used. This regulator is so placed that the room fan forces air over it. This regulator controls the heater current and the cooler fan. As the heater is about 600 watts, a power relay must be used. With this system the room temperature varies less than ± 0.2 degrees F.

Allen Abrams, Marathon Paper Mills, Rothschild, Wis., has used a Mercoid thermostat to control the heater and cooler. While it is not as sensitive as the mercury-toluene regulator, it should regulate to ± 1 degree F, which is entirely satisfactory for the purpose. This eliminates the power relay and the primary relay

* Contribution from the Research Department, Mead Pulp and Paper Company, Chillicothe, Ohio.

controlling the power relay. The Mercoid thermostat, unless unusually accurate temperature control is required, is desirable. The two-circuit instrument is used, one circuit of which goes to the heater, and the other to the cooler fan. The costs of the two systems are approximately equal.

Heater

A heater of approximately 600 watts is adequate for 75 degrees F room temperature. This, however, will vary with location of the room and climatic conditions. We are using a lamp bank with three 200 watt lamps. The lamp bank makes a heater easily adjusted to weather conditions, but other types may be used.

The heater is set in front of the intake room ventilator. The heater fan runs continuously, and also serves to draw fresh air into the room.

Cooler

We operate our room at 75 degrees F. In summer a cooler is necessary to maintain this temperature.

The cooler consists of a 24 by 24 Aerofin heater, through which cold water circulates. The summer temperature of the cooling water is 65 degrees F. This unit is housed in a galvanized iron casing with a large hole to admit room air from the cooler fan, and smaller holes for releasing the cooled air. A solenoid valve to shut off the cooling water may be connected in shunt to the cooler fan. In this case direct current must be used for this circuit.

In cooler climates when a refrigerating type drier is used, a cooler may be unnecessary, especially if the room is well insulated. In this case the drier fan would be so wired that it would be started either by the hygrostat or the thermoregulator. If the fan were operating for lowering the temperature when the humidity was at or under room value, the humidifier would have to compensate. If the fan were operating to lower the humidity with the temperature at or under the room value, the heater would have to compensate.

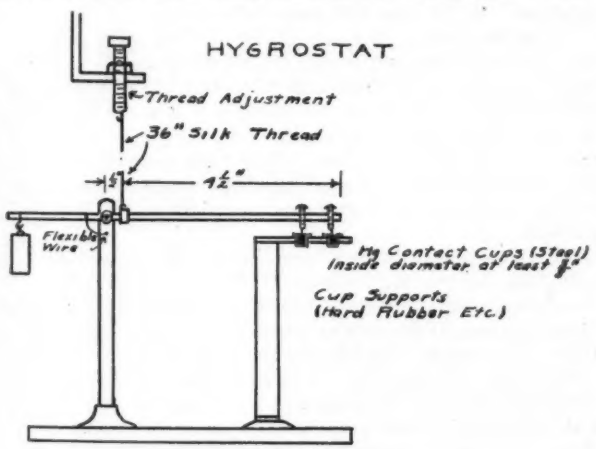


FIG. 3

Drier (Figs. 4 and 5)

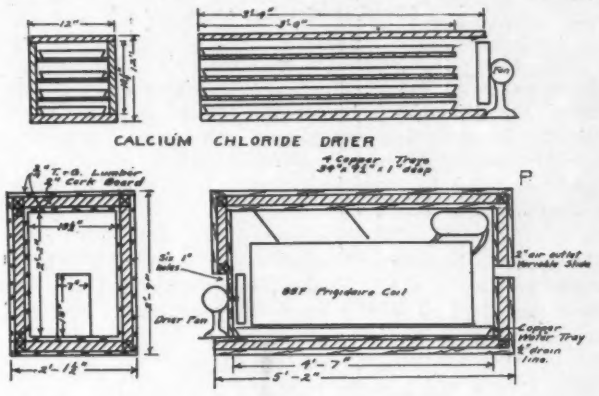
Two types of driers are available, the calcium chloride type, and the refrigerating type.

Our room was first fitted with the calcium chloride drier, shown in Fig. 4.

This was satisfactory until it became necessary to have more than one man in the room at a time, or one man in the room nearly all the time in hot weather. The calcium chloride drier also requires considerable attention in hot weather. A 400 pound drum of calcium chloride lasted two to three months under summer conditions. For these reasons we replaced the calcium chloride drier with a refrigerating drier.

We were operating our room at 50 per cent relative humidity. Under the standard humidity, 65 per cent relative humidity, the calcium chloride drier would undoubtedly be entirely practical for many installations, especially in more northern climates. Where it can be used, the total cost of the room and equipment would be approximately one half that of one equipped with a refrigerating drier.

The refrigerating drier is shown in Fig. 5. In this drier the cooling coil from a household refrigerator is housed in a well insulated box, and room air is forced over the coil. The cooling



FIGS. 4 AND 5

supersaturates the air and a portion of the water vapor freezes, or condenses. This leaves the air saturated with moisture, but at a lower temperature. If air saturated at 40 degrees F is heated to 75 degrees F, the relative humidity will only be 30 per cent. Thus a drying is effected by forcing air at 50 per cent relative humidity over the refrigerator coil, cooling to about 40 degrees F, and again discharging into the room, where it quickly comes to room temperature. Obviously the colder the air discharged from the dehumidifier, the greater will be the drying capacity obtained from the refrigerator. If the air discharges at 54 degrees F, no drying effect will be obtained for a room operated at 50 per cent relative humidity and 75 degrees F. For this reason the box housing the coil is well insulated, the compartment well baffled, and the outlet slide so adjusted that the air is discharged at 40 degrees F or lower.

The refrigerator which we are now using is Frigidaire, ½ hp. water-cooled compressor, with an 88F coil. This has proven entirely satisfactory for drying. Two men may use the room continuously in summer weather. This unit assists materially in maintaining the temperature in hot weather.

The compressor must be located outside the room. Compressors of 1 hp. of this type are now available, and may be necessary under more severe conditions, or for larger rooms. A large compressor would make it possible to eliminate the water cooler as previously mentioned.

A 12 inch fan should be used to agitate and drive the air through the cooling coil box. The fan motor is outside, and the blade inside. This may require an extension of the fan shaft.

The coil is set to operate on a 26 to 32 degrees F cycle. It is usually necessary to defrost the coil and remove the water only once a week. This is accomplished by opening the switch to the compressor motor, opening the drier box and allowing the drier fan to run until all ice is melted. The water trap is then drained.

Humidifier (Fig. 6.)

For humidifying, a simple water tray humidifier is used. The humidifier fan is controlled by the hygrostat through a relay. For 65 per cent relative humidity and dryer outside air, a more efficient humidifier may be necessary. Increased capacity may be obtained by heating the water, by using a spray, or by multiple trays.

Ventilation

The intake ventilator is located near the floor. It is a 6 by 6 inch opening with an adjustable slide. This slide is usually open from ½ to 1 inch. The fan which blows air over the heater is located directly in front of this opening.

The outlet ventilator is located diagonally opposite the inlet, near the ceiling. It is also 6 by 6 inches and adjustable. It may be open somewhat more than the inlet.

Miscellaneous Apparatus

Relays

Standard telegraph relays are preferred rather than some of the cheaper relays now advertised. The difference in cost is very little. The relays should have a resistance of 30 to 100 ohms, and may be operated by dry cells or by a storage battery with a trickle charger. This eliminates faulty operation due to worn-out batteries. A front and back power relay is necessary unless a Mercoid Thermostat is used.

Hygrometer

A hair-type hygrometer is desirable for reading the relative humidity. This should be checked against a wet and dry bulb thermometer. With a hair hygrometer the relative humidity reading may be observed at a glance.

Wire Conditioning Line

Sheets to be tested in the room are suspended from a wire above the shelves near the walls, by means of paper clips for conditioning.

Fans

Induction fans, rather than the fans with the universal motors, are preferable. The recommended sizes are:

Heater fan and room fan, 8 or 10 inch.
Cooler fan and humidifier fan, 10 inch.
Drier fan, 12 inch.

Cost of Room

The cost of the room, with complete conditioning and control

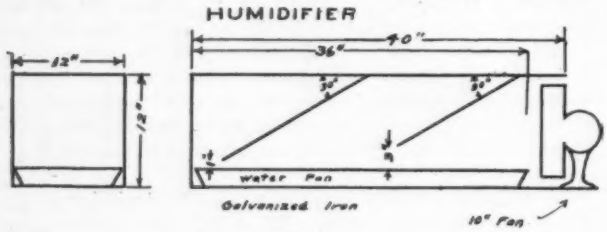


Fig. 6

apparatus, will range from $300 to $900, depending on the size and the apparatus used.

[Thanks are due The Mead Pulp and Paper Company for permission to publish the foregoing description, and the Delco Light Company for assistance in applying the refrigerating equipment.—Author's Note.]

Aerial Officers Must Stay Home

On the ground that the public interest requires the presence of the two officers on duty during the extremely hazardous forest fire period, the Ontario Department of Lands and Forests recently refused permission to Captain Maxwell, Director of the Provincial Air Force, and Captain Tully, Instructor in the Provincial Air Service, to participated in the twenty-five thousand dollar air flight from London, Ont., to London, Eng. Hon. William Finlayson, Minister of Lands and Forests, in a recent statement, made clear the position of the provincial authorities and said that the government would like to grant permission in the matter but that it was not consistent with the public service as, in August, very dry conditions generally prevail in northern pulpwood and timber limits and there is grave danger from forest fires, hence all aerial officers are needed at home.

Champion Fibre Co. Acquires J. D. Rue

John D. Rue, chief of the United States Forest Products Laboratory's Pulp and Paper Section, Madison, Wis., will leave the laboratory about September 15 to take the position of director of research for the Champion Fibre Company, of Canton, N. C. Mr. Rue has been in charge of the pulp and paper section of the Forest Products Laboratory since 1921. Under his direction the

John D. Rue

section has carried out successfully a number of researches of importance to the pulp and paper industry.

Among the studies which yielded notable results were those having to do with the chemistry of the sulphite process, the bleaching of wood pulp, the semi-chemical process, the use of the rod mill as a refiner and beater, the de-inking of news print, the production of book paper from ailanthus, and the production of news print from Brazilian eucalyptus. Cooperative research with firms and individuals has become an especially important part of the federal laboratory's pulp and paper activities under Mr. Rue's guidance.

Mr. Rue was born in New Jersey in 1882 and received his B.S. and A.M. degrees in chemistry at Princeton University. He also did graduate work at Heildelberg, Germany, and Zurich Polytechnikum, Switzerland, and carried on a further graduate study and research while teaching at the University of Michigan.

He taught chemistry at Princeton University, Lawrenceville School, and at the University of Oklahoma from 1906 to 1917, with the exception of a year in Europe and a year in business. From 1913 to 1917 he taught chemical engineering at the University of Michigan, leaving there as captain in the reserve corps of the Ordnance Department and later in the chemical warfare service.

While at the University of Michigan, Mr. Rue specialized in pulp and paper manufacture and gave several courses of instruction, including research in that subject. While he was there, the pulp and paper manufacturers, or a group of them, in Michigan, supported a fellowship at the University. It was a part of Mr. Rue's duties to direct the research of students holding that fellowship.

Following the close of the world war, Mr. Rue became associated with George H. Mead, in Dayton, Ohio, and was with him for two years. One of these years was spent as his representative in technical work at the Fraser Companies sulphite mill at Edmundston, New Brunswick, Canada, and a part of the time as assistant to the president of the Mead Research Company.

Mr. Rue is a prominent member of the Technical Association, the members of which wish him every success in his new post.

Chemical and Byproduct Recovery in Pulp Mills*

By Dr. J. L. A. MacDonald

In such a process as pulp manufacture, where 50 per cent of the starting material occurs as waste organic matter dissolved in the cooking liquors, it may appear remarkable that no clearly defined scheme of byproduct recovery is in general operation. It is true that in both alkaline and acid systems of digestion the valuable inorganic constituents of the lyes are recovered and returned to process for reuse but, though many attempts have been made to utilise the organic matters, no real solution of the problem has been reached except in a very limited way. Thus, from wood liquors (sulphite) the recovery of turpentine, methyl alcohol and ethyl alcohol (after neutralisation and fermentation) is economically successful in certain Scandinavian mills and the lye has been used for such purposes as tanning leather and, after concentration, as a binder in the manufacture of briquets, but these attempts cannot be regarded as having anything more than secondary importance, as they either do not account for more than a fraction of total organic matter present in the lye or they fail by reason of a limited market. To all intents and purposes, it may be said that the non-fibrous organic elements of all wood converted into sulphite pulp are poured down the drain.

Soda and Sulphate

In the alkaline process, both soda and sulphate, the conditions are somewhat different and certain progress can be recorded. In addition to the desire of the authorities to avoid stream pollution, the high cost of soda renders the recovery of this latter imperative if soda pulp is to compete successfully in cost of production with the acid cooked variety. Clearly the economics of any system of soda recovery must be closely bound up with the efficiency of the pulp washing process and one of the advantages of the diffuser system is that for a given percentage recovery much less wash-water is required than by the older system of washing in the blow-pit.

Recovery of Soda

Several methods have been proposed for soda recovery, but such as have received practical application involve the concentration of the exhausted lye followed by incineration, the overall efficiency of the plant depending upon the proportion of heat energy, derived from the burning organic residue, that is recovered. The earlier attempts at recovery involved the use of some form of open evaporating pan or the equivalent, on the principle of applying the combustion heat to do the work of concentration to the inflammation point; this system required the use of considerable quantities of additional fuel and has now given place to more efficient methods incorporating the principle of "multi-effect" concentration in a series of vacuum pans, the lye thus concentrated being incinerated in a rotating kiln, the black ash (in the sulphate process), together with make-up sodium sulphate, passing thence to a melting furnace, from which the molten sodium salts drop into the lixiviating tanks.

In the earlier days of the sulphate process the lye from the washing plant was merely passed through the hot vapours from the burning organic matter and in order to expose as large a surface of liquor to the hot gases as possible the type of plant known as the disk evaporator was in common use. As the name implies, this consisted of a number of vertical disks rotating in the flue from the soda furnace and so arranged that the lower edges of the disks dipped into the soda lye which was thereby carried up on the surface of the disk into the hot gas current. The lye was fed to this evaporator at about 8 deg. B., or possibly a little higher, but before it would burn, the density required to be increased to about 27 deg. B.; the heat from the burning organic substances was insufficient to do this and much additional fuel was required to make the plant effective. With the introduction of the multiple-effect evaporator, improvement in the efficiency was obtained as the vacuum pans increase the density of the lye fed to the disks from 8 to 15 deg. B. But since in actual practice it was found that to produce a given density increase about three times as much heat was required by the disk evaporator in comparison with the vacuum effect system, the latter soon tended to replace the former.

Features of the Sunblad Process

Many arrangements have been devised, but one of the most interesting, in that it is employed for the production of about half the sulphate pulp in Sweden, is that developed by Sunblad and Sandberg. Instead of employing a series of vacuum effects, such as is typical of the practice in the esparto industry, these authorities obtained their temperature gradient much higher up on the absolute scale and introduced a steam at a pressure of 5 to 6 atmospheres into the first effect, taking it from the last effect at about one atmosphere gage pressure. They were able to demonstrate that, using the standard rotary burner, the greater the density of the liquor fed to it the greater the heat economy. In the modern Sunblad system the disk evaporator is dispensed with altogether and the concentrated lye is fed direct to the soda rotary at about 35 deg. B.

Heat Economy

In this connection some highly interesting figures are given by Brahmer ("Tekn. Tids."). This author compares the heat requirements for lye evaporation and burning of the old disk system with the improved modification using vacuum effects for pre-evaporation and use with the modern Sunblad method of multiple pressure effects. Brahmer states that the Sunblad system not only dispenses with the necessity of using additional fuel to make the lye burn, but that the more heat-work done in the pressure evaporators the greater the percentage of heat which becomes available from the rotary burner for further useful work. His figures are given in Table 1, calculated per ton of fibrous cellulose (42 per cent yield).

TABLE 1

	1. Old system without evaporators. 15° Bé. lye to rotary.	2. Old system with 27° vacuum effects. Bé. lye to rotary.	3. Sunblad high-pressure effects. 23° Bé. lye to rotary.	4. Sunblad high-pressure effects. 27° Bé. lye to rotary.	5. Sunblad high-pressure effects. 35° Bé. lye to rotary.
	Cal.	Cal.	Cal.	Cal.	Cal.
Heat for furnaces and radiation	918,000	918,000	918,000	918,000	918,000
Heat in flue gases	1,662,000	1,312,000	1,454,000	1,305,000	1,157,000
Dry distillation loss	220,000	220,000	200,000	100,000	.....
Heat to effects	.....	940,000	1,910,000	2,180,000	2,450,000
Heat to disks	2,790,000	2,790,000	.....	.....	.....
Heat to rotary	1,360,000	1,360,000	2,080,000	1,350,000	790,000
Extra fuel	2,350,000	940,000	.....	.....	.....
Available heat for recovery	.....	.....	1,930,000	2,440,000	3,325,000

In the above figures is included the heat required for raising the temperature of the fused soda to 800° Bé.

Column 2 differs from column 1 in that the ordinary vacuum effect evaporator has been introduced, raising the density of the liquor led to the disks from 8 to 15 deg. Bé. But in spite of this it will be seen that extra fuel is required to the extent of 940,000 cal. per ton of pulp, giving a saving over the old method of nearly 1½ million calories. Three examples of the Sunblad method follow, differing in the amount of work done by the pressure effects; it will be seen that the greater the heat energy applied

* From World's Paper Trade Review.

in the multiple-effect evaporator, the greater is the net saving on the waste-heat boiler placed behind the rotary. From such a system heat energy is available for further use from three sources; firstly, as hot distilled water from the effects; secondly, as low-pressure steam from the last effect and thirdly, as steam generated in the waste heat boiler, the last quantity being included in the preceding table and in practice employed as the heating steam for the first effect.

If the liquor leaves the pressure evaporator system at 35 deg. Bé, the calculated heat available for the waste-heat boiler is 3,325,000 cal. and it is most interesting to note that this quantity is very nearly equal to the total heat requirements of the mill. The important feature thus arises that not only may it be possible to recover enough heat from the waste liquors to effect their evaporation, but that nearly enough is available to make a pulp mill self-supporting in all its operations.

Drawbacks to Multiple-Effect System

Such an ideal working can scarcely be expected and it must not be overlooked that the pressure multiple effect system has serious drawbacks. The most serious of these consists of the deposition of encrusting substances on the tubes of the effects; the effects require to be of ample size and it has been necessary to have one effect spare in order to obtain ample time for cleaning the tubes. A further difficulty is encountered in that the very considerable temperature reached in the smelting furnace causes excessive vaporisation of soda and, therefore, chimney losses; these factors, combined with attack of the furnace lining, causing heavy maintenance charges that cannot be overlooked, though they are to some extent set off by the comparative absence of mercaptan odor due to the more or less complete combustion of the gaseous products of evaporation. Brahmer (*loc. cit.*) states that the dry organic matter of sulphate lye consists approximately of 77 per cent of lignin and 23 per cent of carbohydrate, the calorific values of these being 5,900 cal. and 4,200 cal. respectively, thus giving the organic matter as recovered a calorific value of 5,500. He states that under working conditions 1,325 kg. of organic matter are obtained per ton of pulp, giving 7,300,000 cal.; with an allowance of 700,000 cal. for heat losses in the incinerator, etc., he considers that a net amount of 6,600,000 cal. per ton of pulp is available for heating. These figures are of interest to compare with the corresponding values in esparto pulp production.

Soda recovery in esparto mills follows on similar lines to that obtaining in the wood pulp industry. The lye is concentrated from 4 to 5 deg. Tw./140 deg. F to about 35 deg. Tw/130 deg. F in multiple effects and the density and temperature are thereafter raised in a finishing pressure vessel to 50 to 60 deg. Tw/230 deg. F; the lye in this condition, though viscous, is still sufficiently fluid to be conveniently fed to a rotary roaster, where the common practice is to burn it to a "black ash" containing 35 to 40 per cent Na_2O and 15-20 per cent of carbon. The roaster requires additional fuel at the commencement of operations, but once it has been thoroughly heated up, the combustion proceeds spontaneously.

Soda Recovery from Esparto Liquors

Few published figures are available, but the following data are probably fairly representative. The concentration from 5 to 60 deg. Tw. represents a volume contraction of 12:1; in Sinclair boiler practice 1,200 gals of 5 deg. Tw. lye per ton of grass represents a minimum volume of liquor passed to the recovery plant where the percentage recovery is anything like satisfactory—say, 85 per cent and, therefore, the amount of evaporation required is 1,100 gals. per ton of grass, leaving 100 gals. of strong black lye to go to the soda rotary. Probably in most plants the density of the liquor sent to the rotary is below 60 deg. Tw. with a corresponding increase in the number of gallons.

The following values may be regarded as typical of the results obtainable in most esparto mills and were obtained from a sample of Tullis, Russell and Co.'s liquors: Density, 56 deg. Tw. = d^{100} 1.280; total alkali as Na_2O 12.6 per cent; total solids at 140 deg. C, 59.0 per cent; water (diff.), 41.0 per cent. Calorific value of undried liquor, 4,600 B.t.u. Therefore, assuming 100 gals. of the above liquor per ton of esparto, the heat value available becomes 1,280 × 4,600 = 5,888,000 B.t.u.

The general practice in esparto mills is to pass the concentrated lye from the multiple-effect evaporator direct to the rotary, the flue gases from which are sometimes passed over an economiser to pre-heat water or weak lye; it may be said, however, that a not inconsiderable proportion of the waste heat in most cases passes up the chimney and is lost. Suggestions for the conservation of this heat have been put forward from time to time usually employing some form of waste-heat boiler behind the rotary.

Acetone and Methyl Alcohol: Rinman Process

It still remains to make mention of two more recent developments in connection with soda recovery, since both these are of special interest to the chemical engineer in that, instead of using the organic material merely as fuel, they strive to collect from it valuable chemical derivatives. A number of years ago Rinman, in Sweden, interested himself in the problem of by-product recovery from waste sulphate liquors and finally developed a process for the recovery of acetone and methyl alcohol from the lye of caustic soda cooked wood. The method adopted was to incorporate a considerable amount of free caustic and quick lime with the concentrated lye and then to distil the mass in a slow current of steam in a specially constructed furnace. The method of doing this was briefly as follows: The black lye was partially concentrated, then the necessary quantity of lime and caustic was incorporated, whereafter the mass was further evaporated in a specially constructed vessel. When sufficiently concentrated the thick liquor thus obtained was run into a large number of shallow iron trays carried on iron-framed wagons which, when filled, were run into the furnace. The furnace was indirectly heated with producer gas and steam admitted to the furnace. The first product to distil over was methyl alcohol followed by acetone and other ketones as the temperature rose, the maximum attained being about 350 deg.

The yields given in Table 2 are claimed by Rinman and from the author's experience they appear to be justified.

TABLE 2

Raw material	Pulp quality	Methyl alcohol	Acetone	Methyl ethyl ketone	Light oils	Heavy oils
Spruce or pine..	Kraft	30	18	18	20	40
Spruce	E. B.	40	25	25	30	60
Straw	E. B.	15	25	20	25	80
Reeds	E. B.	20	30	30	25	60
Esparto	E. B.	12	20	20	30	80
Bamboo	E. B.	40	30	30	25	80

Yields are expressed in kilograms per ton of air-dry pulp.

The process is an interesting one, but suffers from the objection of considerable cost of plant and maintenance charges for furnace and wagons may not be very low. On the other hand as operating at Regensberg some years ago, when the author had an opportunity of visiting the mill, the quality and yield of the by-products appeared entirely satisfactory.

The Hagglund-Bergius System

The other byproduct recovery process to which apt reference may be made concerns the application of high-pressure distillation to alkaline wood and other liquors. A preliminary description is given by Hägglund and Bergius (Papier-Fabr.), of which the following may be regarded as the salient features. Black liquors from various German and foreign mills were examined under high pressure temperature conditions and it was found that at 250 deg. decomposition commenced, but was slow; the rate of decomposition was found to increase with temperature up to 350 deg., at which temperature it was found to be complete in half an hour. The main product of the distillation is a tar-oil, viscous, but still fluid at elevated temperatures; in lesser amounts are obtained acetic acid (as sodium acetate) and methyl alcohol as in the Rinman process, together with some quantity of combustible gases.

The preliminary experiments showed that the yield was dependent upon the alkalinity and varies inversely as the excess alkali as regards methyl alcohol and "tar" but directly in terms of gaseous product; the amount of methyl alcohol is dependent upon the temperature and is maximum at 350 deg. The yield of acetic acid appears to be independent of the duration of heating and amount of excess alkali. Formic acid is also produced, but at the temperatures employed this is again decomposed and does not appear as an end product.

The following yields are quoted: From pine wood, per ton of kraft at 45 per cent yield: 510 kg. of tar oil; 130 cub. in. of gas (4,000 cal/m³); 325 kg. of sodium acetate, cryst; 55 kg. of methyl alcohol. From straw, per ton pulp 48 per cent yield; 500 kg. of sodium acetate, cryst.; 26 kg. of methyl alcohol. From birch wood, per ton pulp at 46 per cent yield; 500 kg. of sodium acetate, cryst.; 30 kg. of methyl alcohol.

This process is merely in the experimental condition and may prove attractive. At first inspection it would appear that comparatively costly plant may be required and it is certainly an unfavourable point of both this and the Rinman schemes that methyl alcohol is a principal product, this now being cheaply available as a synthetic product. On the other hand, Hägglund makes the claim that the calorific value of the tar, carbon and gases is so considerable that it is theoretically possible to obtain from them not only sufficient heat and steam, for the regeneration of the alkali, but also enough for the cooking and drying of the pulp.

United States Patents on Papermaking

Issued During July, 1927

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography

1,634,344. Paper formation and weight indicator. Raymond A. Steffens, Hamilton, O. July 5, 1927. (Cl. 265—11.)

1,634,346. Process for the manufacture of artificial wood and product obtained by said process. Tommaso Surdi, Rome, Italy. July 5, 1927. (Cl. 92—3.)

1,634,462. Composition board and method of making the same. Frank J. Hallauer, Madison, Wis. July 5, 1927. (Cl. 154—28.)

1,634,603. Process of making paper from straw and product. Charles D. Wood, assignor to Grasselli Chemical Company, Cleveland, O. July 5, 1927. (Cl. 92—13.)

1,634,807. Wall board. Howard F. Weiss, assignor to C. F. Burgess Laboratories, Inc., Dover, Del. July 5, 1927. (Cl. 154—45.9.)

1,634,809. Wall board. Howard F. Weiss, assignor to C. F. Burgess Laboratories, Inc., Dover, Del. July 5, 1927. (Cl. 154—45.9.)

1,634,885. Papermaking machine. Frank A. Peschl, Jackson Heights, N. Y. July 5, 1927. (Cl. 92—38.)

1,634,997. Method and apparatus for making paper strips with thinned edges. John G. Jones, assignor to Eastman Kodak Co., Rochester, N. Y. July 5, 1927. (Cl. 164—61.)

1,635,057. Paper receptacle making machine. Ignazio Piermattei, Landisville, N. J. July 5, 1927. (Cl. 93—81.)

1,635,212. Lime sludge product and process of making the same. Clarence J. Herrly, assignor to Prest-O-Lite Co., Inc., New York. July 12, 1927. (Cl. 18—475.)

1,635,214. Wall board. Rasmus N. Jensen, Salt Lake City, Utah. July 12, 1927. (Cl. 72—116.)

1,635,258. Rotary screen for paper pulp. Ralph S. Clarke, assignor to Bird Machine Co., South Walpole, Mass. July 12, 1927. (Cl. 92—36.)

1,635,317. Felt conditioner for paper machines. William P. Feeney, Cheboygan, Mich. July 12, 1927. (Cl. 92—50.)

1,635,350. Sand, emery, or other abrasive paper, cloth or the like. Harry C. Simons, Philadelphia, Pa. July 12, 1927. (Cl. 51—185.)

1,635,458. Machine for making fiber tubes. Orton B. Brown and Howard Parker, assignors to Brown Co., Berlin, N. H. July 12, 1927. (Cl. 92—66.)

1,635,637. Process of producing white pulp of high strength. George A. Richter, assignor to Brown Co., Berlin, N. H. July 12, 1927. (Cl. 92—11.)

1,635,765. Drive of drying cylinders of paper machines. Paul Priem, assignor to American Voith Contact Co., Inc., New York, N. Y. July 12, 1927. (Cl. 34—48.)

1,635,772. Apron board for papermaking machines. Charles W. Valentine, assignor to The Bagley and Sewall Co., Watertown, N. Y. July 12, 1927. (Cl. 92—44.)

1,636,491. Electric insulation board. Daniel Manson Sutherland, Jr., Trenton, N. J. July 19, 1927. (Cl. 106—15.)

1,636,748. Paper insulated electric conductor. John R. Long, Tarentum, Pa. July 26, 1927. (Cl. 173—264.)

1,636,750. Manufacture of prepared roofings. John E. Miller, assignor to Certain-teed Products Corp., New York, N. Y. July 26, 1927. (Cl. 91—68.)

1,637,100. Paper baking plates. Andreas Bothe, assignor to Kleen Products Co., Inc., North Wales, Pa. July 26, 1927. (Cl. 53—6.)

1,637,169. Wire cleaning apparatus. Casper E. Youngchild, assignor to John E. Alexander, Port Edwards, Wis. July 26, 1927. (Cl. 92—50.)

1,637,240. Method and machine for making paper. Charles V. Proctor, Biron, Wis. July 26, 1927. (Cl. 92—38.)

Assistant Paper Maker Wanted

Applications for assistant paper maker must be on file with the Civil Service Commission at Washington, D. C., not later than September 20.

The examination is to fill a vacancy in the Bureau of Standards, Department of Commerce, for duty at Ames, Iowa, and vacancies occurring in positions requiring similar qualifications, for duty in Washington, D. C., or in the field.

The entrance salary is $1,500 a year. A probationar yperiod of six months is required; advancement after that depends upon individual efficiency, increased usefulness, and the occurrence of vacancies in higher positions.

The duties will be to assist in the operation and maintenance of an experimental paper mill of the Bureau of Standards.

Competitors will not be required to report for examination at any place, but will be rated on their physical ability, and their education, training, experience, and fitness.

Full information may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of United States civil service examiners at the post office or customhouse in any city.

Wholesale Paper Price Index Number

WASHINGTON, D. C., August 24, 1927.—The wholesale price index number for July for the paper and pulp industry was 152.2, compared with 152.2 for June and 175.3 for July of last year, taking 1913 at 100 per cent, according to the Bureau of Labor Statistics, Department of Labor.

Sulphur Trioxide Determination in Sulphur Dioxide

Determination of Sulphur Trioxide in the Presence of Sulphur Dioxide, Together With Some Analyses of Commercial Liquid Sulphur Dioxide, by J. R. Eckman, Associate Chemist, Bureau of Standards, June 25, 1927. Scientific Papers of the Bureau of Standards, No. 554, Government Printing Office, Washington, D. C. Price 5 cents.

A method for determining sulphur trioxide in sulphur dioxide has been developed for use in a study of the heat of formation of sulphur dioxide. It may find application also in control work in the manufacture of sulphur dioxide, sulphites, and sulphuric acid, and in the analysis of oxygen-free products of combustion fuels. None of the methods given in the literature appeared suitable for the purpose. Therefore a method has been devised for the complete removal of sulphur trioxide by precipitation as barium sulphate in a slightly acid solution of barium sulphite, and filtration and washing of the precipitate with oxygen-free distilled water in an atmosphere of oxygen-free nitrogen. The method has been applied to the analysis of eight samples of commercial liquid sulphur dioxide.

A Correction

Referring to the item headed "Caroa Fiber Available," following the abstract of the Bureau of Standards' technologic paper, "Caroa Fiber as a Papermaking Material," published in this section August 11, this appears to be a statement of the Bureau of Standards, while in reality it was an editor's note and should have been so designated. This correction is made in view of the Bureau of Standards' policy respecting use of its name for advertising purposes.

Modified Sulphite Pulping Process

(Review of U. S. Patents)

This invention is concerned with the production of sulphite pulp in which a sulphurous acid solution of a sodium-sulphur salt is used as the pulping reagent. A sulphite liquor of this type may consist essentially of a sulphurous acid solution of sodium sulphite, the usual sulphite liquor containing usually approximately 1 per cent combined sulphur dioxide and 5 per cent free sulphur dioxide. A modified sulphite liquor is described in Geo. A. Richter's United States patent No. 1,427,125, dated August 29, 1922 and consists essentially of a sulphurous acid solution of sodium sulphate. In the specifications of that patent it is stated, however, that the fiber-liberating action is believed to be exercised by the relatively small amount of sodium sulphite present in the liquor, and which is formed as a product of the reversible reaction which takes place between the sodium sulphate and the sulphurous acid. The sodium sulphite is continuously withdrawn from the sphere of reaction and is exhausted in the fiber liberating action which it exercises, but it is continuously regenerated from the relatively large amount of sodium sulphate which acts as the available source of raw material for the sodium sulphite necessary for pulping. The liquor which is used in carrying out that process should preferably contain about 4 per cent of sodium sulphate and 5 per cent of sulphur dioxide. The use of sodium sulphate (salt cake) in the cooking liquor is advantageous, since the loss in sodium constituent in the process may be made up or replaced by other sodium sulphate, which is a cheaper material than either sodium carbonate or caustic soda, which are usually employed for make-up purposes in sodium base sulphite liquors.

The same inventor has now discovered that a portion of the sodium constituent in soda base sulphite liquors can be replaced by niter cake, or sodium bisulphate ($NaHSO_4$), to produce a high grade sulphite pulp essentially equivalent to sulphite pulps produced by sodium base liquors heretofore employed. Such substitution of niter cake instead of the usual sodium constituents is very advantageous because of the cheapness of niter cake, which is obtained as a by-product in the manufacture of nitric acid from Chili saltpeter.

Although raw cellulosic material can be pulped successfully in a liquor consisting essentially only of a sulphurous acid solution of niter cake, it has been found that the resultant pulp is not readily bleachable to the desired degree of whiteness, and if an amount of bleach sufficient to produce a satisfactory white is employed, the strength, tearing resistance and general paper making qualities of the resultant pulp are impaired.

While unable to precisely account for the inability to produce a bleachable fiber with this liquor, Richter suggests that the sulphuric acid content of the liquor (which remains intact or practically unaffected by the free sulphur dioxide which is bubbled into the niter cake solution to produce the cooking liquid) prevents or represses to a very large extent the reversible ionic reaction of the sulphurous acid and the sodium sulphate in the liquor. In other words, because of the high concentration of one of the products of reaction (sulphuric acid), the reaction to form sodium sulphite and sulphuric acid is repressed and insufficient sodium sulphite is produce to effect the desired action on the ligneous constituents.

But when the niter cake is used together with other sodium compounds possessing fiber-liberating action in sulphurous acid solution, a very good grade of pulp may be obtained, substantially equivalent to the usual high grade sulphite produced by the use of sodium base liquors.

In accordance with the invention (United States Patent No. 1,610,323 of December 14, 1926) raw cellulosic material, such as spruce chips, is digested in an acid cooking liquor containing 2 per cent niter cake, 2 per cent sodium sulphate, and 5 per cent free sulphur dioxide. Or the fiber liberation may be carried out in a liquor containing niter cake, sodium sulphite and free sulphur dioxide, a typical liquor containing about 2 per cent niter cake, about 0.5 per cent combined sulphur dioxide and 5 per cent free sulphur dioxide. Or, is desired, a mixture of the reagents employed in the two liquors just described, and consisting of a solution of niter cake, salt cake, sodium sulphite and a suitable quantity of free sulphur dioxide, may be employed as the digesting liquor.

In actual practice the cooking is carried out in practically the same way as in the digestion of wood chips in the usual calcium bisulphite liquor. When cooking is complete the digester is blown and the sulphur dioxide liberated from the spent liquor and rising from the blow pit may be recovered by known processes. The spent liquor is separated from the pulp, neutralized (preferably with alkaline sodium compounds) and subjected to a recovery process such as described in patent 1,427,125. In this process the spent liquor is evaporated to the desired concentration and then delivered in a disrupted state under pressure into a recovery retort where the organic matter of the liquor is burned and the valuable inorganic content is smelted under oxidizing conditions to yield a smelt consisting of sodium sulphate and a relatively small amount of sodium carbonate. The effluent smelt from the furnace is caught in the desired amount of water in a dissolving tank and may subsequently be acidified with the desired amount of sulphur dioxide for the preparation of fresh digesting liquor. The sodium constituent and sulphur dioxide volatilized durng the smelting operation from the recovery retort may be recovered and reintroduced into the cycle at the desired points. Sufficient niter cake, in addition to the sodium constituent employed for neutralization, may be added to the smelt liquor to make up the various sodium losses encountered during the cycle and to produce a liquor of the desired niter cake content. The smelt liquor is then acidified for the production of a digesting liquor having the desired free sulphur dioxide content. The regenerated liquor will thus usually consist essentially of sodium sulphate and niter cake, together with a relatively smaller amount of sodium sulphite.

The pulp produced with this liquor is of good color and strength and has easy beating properties. The amount of sulphuric acid present in the liquor owing to the presence of niter cake and the reaction of the sulphurous acid with the salt cake is not sufficient to injure the fiber. As a matter of fact, the presence of sulphuric acid is claimed to promote the liberation of pulp at a lower temperature of digestion and in a shorter period than ordinarily, which is attributed to the fact that the hydrolytic or dissolving action exercised by the liquor on the incrustations of the wood is favored materially by the high hydrogen ion concentration caused by the sulphuric acid.

The process possesses the added advantages that stream pollution by the sulphite waste liquor is entirely eliminated, and that no causticizing operation is required in the preparation of the cooking liquor.—A.P.-C.

Progress on Paugan Hydro-Electric Development

Construction work is progressing rapidly on the Paugan, Quebec, hydro-electric development of Gatineau Power Company.

The following quantities of excavation, concrete and reinforcing have been completed: Earth excavation, 17,341 cubic yards; rock excavation, 242,955 cubic yards; concrete—main dam, spillway and by-pass, 28,242 cubic yards; concrete—powerhouse substructure, 5,162 cubic yards; reinforcing steel—main dam, spillway and by-pass, 353 tons; reinforcing steel—powerhouse and penstocks, 72 tons.

The Paugan development is on the Gatineau River, thirty-three miles north of the City of Ottawa, and twenty-six miles above the Chelsea hydro-electric development of the company.

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Providing the Operating Executive with Control Statements *

By Howard L. Gibson

(Mr. Gibson outlines here two statements which will repay careful consideration by the busy executive. The statements are simple in form, and their preparation should not be a burden to an accounting department.

The problem of designing tabulations and graphs that will afford the executive a comprehensive picture of the status and operations of his business is one to which accountants have given much thought.

The contribution made by Mr. Gibson is well worth while. The statements are in such form that they may be adapted to many lines of business activity with but few changes.

For purposes of illustration Mr. Gibson has used fictitious figures. Neither of the statements given presents the operations of an existing company.—The Editor.)

In an effort to devise forms of financial statements that will present concisely all the information needed for complete interpretation of the status and operations of a business, some writers have advocated the ratio method, others the index plan; still others have combined the two. At least one writer has gone so far as to advise the use of the ratios or indexes alone, without presenting the figures, on the theory that it is the relationships that count, not the figures themselves.

Two statements are presented in this article. They are designed for the operating executive, to give him a periodical picture of the operations of his business. This operating executive is usually a busy man with varied interests, and the results of his efforts as reflected in the income statement are of primary importance to him. Consequently, statements which will portray the results of the fundamental operations briefly and clearly and without necessitating the use of paper and pencil to dig out desired information will be of great value to him.

The statements consist of the usual form of income statement supplemented by a scheduled cost-of-sales statement. Comparison is made of the current month with the preceding month, and of the cumulative results of the current year to date with the corresponding period of the preceding year. Ratios, percentages, and turnovers are used where they are of value, and are placed, in most instances, in juxtaposition to the figures to which they apply, instead of at the bottom of the sheet or on a separate statement, where the trend of thought is apt to be lost in an attempt to find a desired ratio.

The statements are generalizations which can readily be redesigned to fit a particular business, and in many instances it may be necessary to supplement them by special statements or schedules for individual cases, although voluminous detailed figures should always be avoided from the standpoint of the operating executive. The statements should be visualized as the final condensation, in the case of a large business, of a mass of figures emanating from the books of the various plant accountants, sales offices, branches, and the like, classified and condensed by the general accounting department into the brief statements illustrated.

Amplification of Any Item

By reversing the process the operating executive can call for amplification of any item which appears out of line. For example, by referring to the illustrations, if the percentage of returned sales to gross sales appears abnormally high in comparison with the previous month or similar period, a request for an amplification of returned sales may disclose that the increase is confined to the St. Louis territory, which upon further investigation may uncover a defective finished product caused by improper manufacturing methods that in time would seriously impair the sales in the territory involved.

If the industry consisted of distinctive products with special methods of production, it would probably be found advantageous to have a separate set of statements for each of the processes, with a combined set to show the results as a whole. This procedure can even be carried out to each plant or to departments, as the circumstances may require.

For the purpose of describing the items in these statements and the possibilities of their use we shall assume a fair-sized manufacturing concern which is still in its embryo stage and has shown a large profit over its first few years of operation. The product manufactured does not require a very large plant investment, and the labor element constitutes a large proportion of the cost of manufacture. As a result of the success that the management has realized from the early operations of this business, and because of a diminishing margin of profit resulting from steadily growing competition, it determined in the latter part of 1926 to increase the volume of its products through a plant-expansion program of $2,000,000, all of which was met by an additional bond issue. The construction of this extension is not completed, and is not yet operative. In order to increase the sales to meet this expanded capacity the company has launched a more extensive sales pro-

* From The American Accountant.

gram. The management believes that by increasing its output and effecting manufacturing economies, it can meet this competition and realize the same net return on the investment as in the early years.

The foregoing, of course, is known to the operating executive and he is now viewing the statements as of March 31, 1927. He is thoroughly familiar with the policies and operations as outlined above, and analyzes the statements to determine how these policies and operations are affecting the business. On the other hand, a credit man or a banker analyzes statements from a different viewpoint. Credit men and bankers usually are not familiar with these policies or operations and endeavor to discover what they may be from the statements.

The following is a comparative balance sheet as of March 31st, 1927, February 28th, 1927, and March 31st, 1926. No attempt has been made to set up this statement in analytical form, as it is used only for the purpose of illustrating the percentages and ratios in the income and cost-of-sales statements. This article is concerned chiefly with the latter two, and not with balance sheets:

COMPARATIVE BALANCE SHEET

	Mar. 31, 1927	Feb. 28, 1927	March 31, 1926
Assets			
Cash	$1,000,000.00	$1,050,000.00	$ 850,000.00
Accounts Receivable	3,000,000.00	2,950,000.00	2,400,000.00
Inventory	6,000,000.00	5,750,000.00	4,990,000.00
Total Current	$10,000,000.00	$9,750,000.00	$8,240,000.00
Property Account	8,000,000.00	8,000,000.00	6,000,000.00
Other Assets	1,000,000.00	1,000,000.00	800,000.00
	$19,000,000.00	$18,750,000.00	$15,040,000.00
Liabilities			
Current Liabilities	$3,022,000.00	$2,784,000.00	$2,000,000.00
Funded Debt	4,000,000.00	4,000,000.00	2,000,000.00
Capital Stock and Surplus:			
Preferred	2,000,000.00	2,000,000.00	2,000,000.00
Common—$100 par	8,000,000.00	8,000,000.00	8,000,000.00
Surplus	1,978,000.00	1,966,000.00	1,040,000.00
Net Worth	$11,978,000.00	$11,966,000.00	$11,040,000.00
	$19,000,000.00	$18,750,000.00	$15,040,000.00

Income Statement

The percentages of returned sales, allowances, discounts and freight, and their total to gross sales are shown opposite the respective items (see below). They are important in that they may reflect imperfect finished product or too-liberal sales policy. It will be seen at a glance that the returned sales during March amounted to 6.6 per cent of the gross sales, as against only a fraction of this percentage in the previous periods. If this large increase in returned sales is not already familiar to the operating executive, it unquestionably should call for a prompt investigation. As previously referred to, this may be explained by a defective finished product distributed in the St. Louis territory.

The turnover of total capital is a measure of the volume of business received on the total funds employed in the business. It is computed by dividing the total assets into the sales, computed to the yearly basis. The yearly basis is computed by multiplying the figures for a month by 12, and the figures for the three months period by 4. The percentages reflect a poorer turnover in 1927 than in 1926, due to the expanded plant, the benefits of which are not yet accruing to the company. The executive may desire, in this case, an additional turnover figure based on the operating plant only, in order to get a comparison of operations to past performance.

A turnover of once per year on total capital is a fair figure for the average manufacturing concern. In the case of a railroad or public utility the figure will be small, whereas in the case of a retail merchandising establishment the figure will be much larger. The item should be compared with the general standard of the industry as a whole and the past performances in the company itself.

The turnover of fixed capital, also computed to the yearly basis, measures the volume of business to the plant investment. In this percentage also the idle plant extension reflects an unfavorable comparison with the previous year, as shown by a turnover of 2.11 times for the first quarter of 1927, compared with 2.53 for the similar period of 1926.

The number of days of accounts receivable outstanding is computed by determining the average sales per day (considering 300 operating days per year) and dividing this figure into the total accounts receivables outstanding. It is to be noted that the days of accounts receivable outstanding during 1927 are greater than for the similar period of the previous year. Barring unavoidable economic conditions or any change in terms of sale, this figure should remain fairly constant. The credit department should be called upon to explain such an increase as is shown.

Cost of Sales

This figure is amplified in the accompanying cost-of-sales statement. Its percentage to net sales is important in arriving at and watching the spread between costs and sales, and it is to be noted that this spread has diminished compared with the previous year, which is the result of increased competition that necessitated price-cutting. This decrease in spread, or margin, due to keen competition is typical of the present trend of business, and, as with our assumed company, is being met by increased sales effort to obtain larger turnovers and thus the equivalent net return.

The turnover in finished goods inventory is arrived at by dividing the average finished-goods inventory carried during a given period into the cost of sales during the period. The turnover for the individual months of March and February have been omitted because of the difficulty of arriving at an intelligent figure for such a short period. The average inventory cannot usually be computed with ease during the period of one month. The figure over a long period will quickly reflect a heavy inventory which may be abnormal in proportion to sales.

Gross Profit

The percentage of gross profit to net sales is the same as the difference between the percentage of cost of sales and net sales, and gives the actual spread, or gross margin, between the two.

Expenses

The percentages of selling, advertising, and miscellaneous expenses, and their total to net sales are always important to watch. They are items that are difficult to keep within proper bounds and should not be allowed to grow out of proportion to the volume of business handled. The increased selling expense and advertising appropriations in 1927 over 1926 are immediately disclosed in the statement. The two now total nearly 6 per cent of net sales, whereas in 1926 the combined figures amounted to only 3.4 per cent of gross sales.

Operating Income

The per cent of operating income to net sales measures the portion of sales remaining as profit. The per cent of operating income to total capital invested should be computed to the yearly basis. This is a measure of the operating profit on the total capital employed in the business. The idle portion of the plant as well as the smaller margin of profit accounts for the decrease in 1927 over 1926.

The per cent of operating income to fixed capital gives the real measure of the returns on the plant investment. This likewise should be converted to the basis of a yearly percentage. A precentage of 35.5 for the first quarter of 1927, compared with 64.0 for 1926, has a similar explanation as the percentage to total capital in the preceding paragraph. The size of this percentage substantiates the statement previously made, that our assumed company requires a comparatively small plant investment. As the turnover on fixed capital measures the volume of business compared to the plant investment, as explained above, so the operating income to fixed capital measures the return earned on the funds invested in the plants. These two relationships should be considered carefully in contemplating an expansion program or in checking results after the completion of such program.

The percentage of the various non-operating items of income or expense to operating income may be of importance in explaining a large difference between operating income and net profits as

would be the case where a heavy funded debt exists or where a large income is derived from sources other than operations, but under average conditions such percentages mean very little and can readily be eliminated.

Net Profits

The percentage of net profits to net worth is the real measure of the earning capacity of the business. Net worth is used, since it includes preferred stock, common stock, and surplus, or the total stockholders' investment. Since surplus belongs to the stockholders but is retained in the business for the good of the business as a whole, it represents the stockholders' investment just as much as the actual capital stock, and should earn a fair return.

The return on net worth should be at a higher rate than can be obtained on the open investment market, at present somewhat over 6 per cent, to justify fully the operations of the business. If otherwise, it would be better for the stockholders to discontinue the business and invest their funds elsewhere. Such a general statement, of course, applies only over a considerable period, as there are times of depression or during early stages of promotion of a new enterprise when the return will be very small, or even a negative quantity, and yet the continuation of the business may be justified on the prospects of higher returns in the future. A return of 29.3 per cent for the first three months of 1926 has reduced to 19.9 per cent for the first quarter of 1927, and continued to decline to 10.2 per cent in March, 1927, in the company illustrated, all of which it expects to regain by increased production and sales.

Dividends and Surplus

The percentage of net profits distributed as dividends and the remaining portion put back into the business are always of interest. The percentage paid out as dividends in a well-established business which is more or less static can well afford to be large, but in a growing concern a large portion should be retained. These relationships will often give a clue to the policy of the directors: whether conservative, liberal or speculative.

Since our assumed concern is still in its development stage, its directors have shown wisdom in a very conservative policy. Nearly 79 per cent of the earnings of the first quarter of 1927 were retained in the business, while in the similar period of 1926 over 84 per cent were retained. The stockholders could rightfully look forward to a larger dividend distribution in the future.

Miscellaneous

The working capital ratio, earnings per share on common stock, and book value per share of common stock need little comment, as they are well-recognized measures.

Working capital deserves constant watching and should at all times be adequate. Even though earnings are good, and a fair portion is retained in the business, the company may yet face embarrassment because of lack of liquid funds to meet current obligations if such retained earnings are tied up in extensions and expansion.

The operating executive will always be interested in the per cent of raw materials used and supplies used to the cost of manufacture, also in the elements which make up each.

The percentage of each classification of manufacturing expense and their total to the cost of manufacture are of primary interest to the operating executive. The works superintendent may be called upon to explain an unusual proportion of direct labor to total cost of manufacture. Careful investigation may uncover padded payrolls or inefficient labor. An irregularity in the proportion of power cost may require detailed statements and figures of the power-plant operations, which may develop inadequate or inefficient equipment or operation. The item of depreciation alone is a deep study in itself, the net result of which is portrayed to the operating executive in this statement in its proper relationship to the other elements of cost.

Each of the items of manufacturing expense are essential from an operating standpoint and must be watched and studied individually as the case may require.

Cost of manufacture, change in work-in-process, cost of goods completed—all of these items are of interest, as they enter into the cost of sales. This final figure appears in the income statement in arriving at the profits for the period.

These turnovers are grouped at the bottom of the statement as they are all closely related measures, although they may just as easily appear under their respective items in the body of the statement, as is done in the income statement. They are determined by dividing the cost of the material used from the inventory by the average inventory carried, and should be converted to the yearly-turnover basis.

In each case an inventory that is too large will mean funds needlessly tied up which could be more profitably employed elsewhere, as well as possible excessive loss from deterioration, and the added expense from occupancy of unnecessary space for storage. On the other hand, inventories, which are too small may hinder manufacture or sales. To keep a constant mean between the two extremes requires a continual watch of their size and turnover.

The analytical statements may be prepared either by an assistant of the operating executive from the usual monthly reports or else directly by the accounting department. It would seem that the latter procedure would be preferable, since the basic figures are all available in the accounting department and since, too, the true function of the chief accountant or auditor is to compile and interpret financial facts and present them in as clear and readable a form as possible. The accountant is sometimes accused of losing sight of this fact and of measuring his value to the corporation by presenting voluminous and complicated figures and statements. Surely he could not show his real value in a better way to the operating executive than by analyzing the figures of interest to him along the lines outlined above, and by similarly interpreting the statements to the sales manager, treasurer, and other officers.

An interesting development of the percentages and ratios used here is that made by a few corporations that have employed them for budget purposes instead of for the uses here described. Standard percentages are set up, based on past performance, and are used as an objective for future performance. For example, after the manufacturing program has been decided upon, a predetermined percentage or direct-labor cost to cost of manufacture will be set up as the budget objective for the ensuing period, possibly lower than the standard percentage of past performance in view of expected additional economies. Similar objective percentages are set up for other expense items, inventory turnovers, and the like. Under such conditions the statements described give an ideal check of actual results to the budget program.

ANALYTICAL INCOME STATEMENT March 31, 1927.
(Stated in terms of nearest hundred of dollars.)

	This Month		Last Month		This Year to Date		Last Year to Date	
	Amount	Per cent	Amount	Per cent	Amount	Per cent	Amount	Per cent
SALES:								
Gross Sales	$1,500,000	100.0	$1,450,000	100.0	$4,500,000	100.0	$4,000,000	100.0
Less: Returned sales	100,000	6.6	25,000	1.7	140,000	3.1	80,000	2.0
Allowances	10,000	.7	10,000	.7	30,000	.7	40,000	1.0
Discounts	18,000	1.2	17,000	1.2	48,000	1.0	41,000	1.0
Freight	22,000	1.5	28,000	1.9	62,000	1.4	49,000	1.2
	150,000	10.0	80,000	5.5	280,000	6.2	210,000	5.2
NET	1,350,000	90.0	$1,370,000	94.5	$4,220,000	93.8	$3,790,000	94.8

	This Month Amount	This Month Per cent	Last Month Amount	Last Month Per cent	This Year to Date Amount	This Year to Date Per cent	Last Year to Date Amount	Last Year to Date Per cent
NET SALES	$1,350,000	100.0	$1,370,000	100.0	$4,220,000	100.0	$3,790,000	100.0
Turnover of total capital	.85 times		.88 times		.89 times		1.01 times	
Turnover of fixed capital	2.02 times		2.05 times		2.11 times		2.53 times	
Days receivables outstanding	55.5 days		53.8 days		56.9 days		47.5 days	
COST OF SALES (see attached schedule)	1,050,000	77.8	1,000,000	73.0	3,050,000	72.3	2,500,000	66.0
Turnover of finished goods	... times		... times		6.0 times		5.8 times	
GROSS PROFIT	300,000	22.2	370,000	27.0	1,170,000	27.7	1,290,000	34.0
EXPENSES:								
Selling	50,000	3.7	50,000	3.6	150,000	3.6	100,000	2.6
Advertising	30,000	2.2	30,000	2.2	90,000	2.1	30,000	.8
Administrative, etc.	80,000	5.9	70,000	5.1	220,000	5.2	200,000	5.3
TOTAL	160,000	11.8	150,000	10.9	460,000	10.9	330,000	8.7
OPERATING INCOME	$ 140,000	10.4	$ 220,000	16.1	$ 710,000	16.8	$ 960,000	25.3
OPERATING INCOME	$ 140,000	100.0	$ 220,000	100.0	$ 710,000	100.0	$ 960,000	100.0
Per cent of total capital	8.8		14.1		14.9		25.5	
Per cent of fixed capital	21.0		33.0		35.5		64.0	
NON-OPERATING INCOME AND EXPENSES:								
Interest received	(I) 1,000	+ .7	(I) 1,000	+ .4	(I) 3,000	+ .4	(I) 2,000	+ .2
Less: Interest paid	(E) 20,000	— 14.3	(E) 20,000	— 9.1	(E) 60,000	— 8.5	(E) 30,000	— 3.1
Taxes (Federal), etc.	(E) 19,000	— 13.5	(E) 19,000	— 8.6	(E) 57,000	— 8.0	(E) 124,000	— 12.9
NET	38,000	27.1	38,000	17.3	114,000	16.1	152,000	15.8
NET PROFITS	$ 102,000	72.9	$ 182,000	82.7	$ 596,000	83.9	$ 808,000	84.2
NET PROFITS	$ 102,000	100.0	$ 182,000	100.0	$ 596,000	100.0	$ 808,000	100.0
Per cent of net worth	10.2		18.3		19.9		29.3	
DIVIDENDS:								
Preferred	.....	....	36,000	19.8	36,000	6.0	36,000	4.5
Common	90,000	88.2	.....	...	90,000	15.1	90,000	11.1
TOTAL	90,000	88.2	36,000	19.8	126,000	21.1	126,000	15.6
Surplus for Period	$ 12,000	11.8	$ 146,000	80.2	$ 470,000	78.9	$ 682,000	84.4
SURPLUS:								
For Period	$ 12,000		$ 146,000		$ 470,000		$ 682,000	
Beginning of period	1,966,000		1,820,000		1,800,000		700,000	
Adjustments	.....		.....		— 292,000		— 342,000	
	$1,978,000		$1,966,000		$1,978,000		$1,040,000	
Working Capital Ratio	3.3 to 1		3.5 to 1		3.3 to 1		4.1 to 1	
Earnings per share, common	$ 13.50		$ 25.50		$ 28.00		$ 38.60	
Book value per share, common	$124.72		$124.57		$124.72		$113.00	

ANALYTICAL STATEMENT OF COST OF SALES March 31, 1927.

(Stated in terms of nearest hundreds of dollars)

RAW MATERIAL COST	This Month Amount	This Month Per cent of cost of manufacture	Last Month Amount	Last Month Per cent of cost of manufacture	This Year to Date Amount	This Year to Date Per cent of cost of manufacture	Last Year to Date Amount	Last Year to Date Per cent of cost of manufacture
Opening inventory	$1,800,000		$2,030,000		$1,500,000		$1,380,000	
Purchases (net)	480,000		.....		1,690,000		1,120,000	
Expenses	20,000		20,000		60,000		50,000	
Closing inventory	2,000,000		1,800,000		2,000,000		1,500,000	
Total used	300,000	30.0	250,000	27.5	1,250,000	35.6	1,050,000	33.9
SUPPLY COST:								
Opening inventory	400,000		350,000		300,000		240,000	
Purchases (net)	200,000		150,000		550,000		200,000	
Closing inventory	500,000		400,000		500,000		240,000	
Total used	100,000	10.0	100,000	11.0	350,000	10.0	200,000	6.4
MANUFACTURING EXPENSE:								
Indirect labor	10,000	1.0	10,000	1.1	30,000	.9	30,000	1.0
Direct labor	400,000	40.0	350,000	38.4	1,250,000	35.5	1,300,000	41.9
Supervision	100,000	10.0	100,000	11.0	350,000	10.0	250,000	8.1
Power	20,000	2.0	20,000	2.2	60,000	1.7	60,000	1.9
Repairs	20,000	2.0	30,000	3.3	70,000	2.0	60,000	1.9
Depreciation	40,000	4.0	40,000	4.4	120,000	3.4	120,000	3.9
Insurance, taxes, etc.	10,000	1.0	10,000	1.1	30,000	.9	30,000	1.0
Total	600,000	60.0	560,000	61.5	1,910,000	54.4	1,850,000	59.7
COST OF MANUFACTURE	1,000,000	100.0	910,000	100.0	3,510,000	100.0	3,100,000	100.0
CHANGE IN WORK-IN-PROCESS:								
Opening inventory	1,520,000		1,640,000					
Closing inventory	1,500,000		1,520,000		1,450,000		1,250,000	
					1,500,000		1,450,000	
Change	—20,000		—120,000		+50,000		+200,000	
COST OF GOODS COMPLETED	1,020,000		1,030,000		3,460,000		2,900,000	
CHANGE IN FINISHED GOODS:								
Inventory:								
Opening inventory	2,030,000		2,000,000		1,590,000		1,400,000	
Closing inventory	2,000,000		2,030,000		2,000,000		1,800,000	
Change	—30,000		+30,000		+410,000		+400,000	
Cost of Sales	$1,050,000		$1,000,000		$3,050,000		$2,500,000	
Turnover of raw materials					2.9 times		2.9 times	
Turnover of supplies					3.5 times		3.3 times	
Turnover of work-in-process					9.4 times		8.6 times	
Turnover of finished goods					6.8 times		6.2 times	

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WEEK ENDING AUGUST 20, 1927

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Printing paper .....73 bls., 81 cs.
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C. W. Sellers, Pres. Roosevelt, Bremen, 4 cs.
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C. W. Sellers, Dresden, Bremen, 7 cs.
L. A. Consmiller, Dresden, Bremen, 6 cs.

COLORED PAPER

Phoenix Shipping Co., Dresden, Bremen, 5 cs.

TISSUE PAPER

R. F. Downing & Co., Thuringia, Hamburg, 1 cs.
G. W. Sheldon & Co., Samaria, Liverpool, 1 cs.

BOWL PAPER

C. A. Johnson & Co., Samaria, Liverpool, 22 pkgs.

WRITING PAPER

Japan Paper Co., Ile de France, Havre, 11 cs.
The Eleto Co., Muenchen, Bremen, 1 cs.
Globe Shipping Co., Aquitania, Southampton, 1 cs.

ENVELOPES

Globe Shipping Co., Muenchen, Bremen, 36 cs.

MISCELLANEOUS PAPER

American Express Co., Drottningholm, Gothenburg, 1 cs.
Wolf Bros., Drottningholm, Gothenburg, 133 rolls.
The Borregaard Co., Inc., Drottningholm, Gothenburg, 1 ble.
Arkell Safety Bag Co., Drottningholm, Gothenburg, 180 rolls.
C. K. McAlpine & Co., Drottningholm, Gothenburg, 110 bls.
Maltus & Ware, Lapland, Antwerp, 29 pkgs.
Graphic Duplicator Co., Kifuku Maru, Hamburg, 8 bls.
P. H. Petry & Co., Thuringia, Hamburg, 1 cs.
C. Grimmer & Son, Ile de France, Havre, 1 cs.
Keller Dorian Paper Co., Ile de Fracne, Havre, 11 cs.
J. C. Robold & Co., Ile de France, Havre, 3 cs.
Tiffany & Co., Ile de France, Havre, 3 cs.

RAGS, BAGGINGS, ETC.

State Bank, Oakspring, Buenos Aires, 11 bls. rags.
I. Heuerfeld, Oakspring, Buenos Aires, 4 bls. rags.
Central Mercantile Bank, New York, Hamburg, 22 bls. rags.
E. Mayer, Ala, Antwerp, 84 bls. rags.
Chase National Bank, Malaren, Helsingfors, 70 bls. rags.
Equitable Trust Co., Malaren, Helsingfors, 47 bls. rags.
A. W. Fenton, Inc., Kifuku Maru, Hamburg, 43 bls. rags.
B. D. Kaplan, Samaria, Liverpool, 10 bls. rags.
Mutnick Bros., Samaria, Liverpool, 15 bls. rags.
A. W. Fenton, Inc., Dresden, Bremen, 8 bls. rags.
Castle & Overton, Inc., Francisco, Antwerp, 215 bls. rags.
Castle & Overton, Inc., Francisco, Antwerp, 36 bls. bagging.
Chemical National Bank, Francisco, Antwerp, 34 bls. rags.
Bulkley, Dunton & Co., Francisco, ——, 57 bls. rags.
Manufacturers Trust Co., Muenchen, Bremen, 58 bls. bagging.
Castle & Overton, Inc., American, Japan, 33 bls. rags.

OLD ROPE

Brown Bros. & Co., Lapland, Antwerp, 1,380 bls.
N. Y. Trust Co., Chelma, Barcelona, 72 bls.

CASEIN

Champion Coated Paper Co., Oakspring, Buenos Aires, 1,030 bags, 113,486 lbs.
Kalbfleisch Corp., Southern Cross, Buenos Aires, 778 bags.
National City Bank, Southern Cross, Buenos Aires, 526 bags.
Karolith Corp., Ile de France, Havre, 134 bags.
J. H. Faunce, Ile de France, Havre, 150 bags.
Atterbury Bros., Inc., Ile de France, Havre, 466 bags.

WOOD PULP BOARDS

C. K. McAlpine & Co., Drottningholm, Gothenburg, 4 bls.

WOOD FLOUR

The Burnet Co., Drottningholm, Gothenburg, 271 bags.
H. J. Baker & Bros., Westerner, Rotterdam, 400 bls., 20,000 kilos.

WOOD PULP WADDING

H. D. Catty & Co., Westerner, Rotterdam, 100 bls.

WOOD PULP

E. M. Sergeant & Co., Drottningholm, Gothenburg, 150 bls. kraft soda pulp.
E. M. Sergeant & Co., Drottningholm, Gothenburg, 299 bls. dry soda pulp.
Parsons & Whittemore, Inc., Drottningholm, Gothenburg, 180 bls. sulphite.
J. Anderson & Co., Malaren, Gothenburg, 250 bls. sulphite.
Atterbury Bros., Inc., Malaren, Gothenburg, 250 bls. sulphite.
W. Hartman & Co., Kifuku Maru, Hamburg, 125 bls. wood pulp, 24 tons.
E. J. Keller Co., Inc., Kifuku Maru, Hamburg, 1,018 bls. wood pulp, 153 tons.
Chemical National Bank, Kifuku Maru, Hamburg, 256 bls. sulphite, 51 tons.
J. Anderson & Co., Kifuku Maru, Hamburg, 1,050 bls. sulphite, 200 tons.
E. M. Sergeant & Co., Stavangerfjord, Oslo, 325 bls. chemical pulp.
Buck, Kiaer & Co., Inc., Stavangerfjord, Oslo, 600 bls. kraft pulp.
Chemical National Bank, Stavangerfjord, Oslo, 800 bls. sulphite.
Perkins, Goodwin & Co., Stavangerfjord, Drammen, 250 bls. sulphite.
Pagel, Horton & Co., Inc., Fernhill, Gefle, 1,250 bls. sulphite.
Pagel, Horton & Co., Inc., Fernhill, Gefle, 1,250 bls. sulphate.
Bulkley, Dunton & Co., Fernhill, ——, 3,250 bls. sulphite.
Price & Pierce, Ltd., Fernhill, Wallvik, 300 bls. sulphite.
Brown Bros. & Co., Fernhill, Norrsundet, 5,000 bls. sulphate.
J. Anderson & Co., Aggersund, Hernosand, 300 bls. sulphite, 50 tons.
J. Anderson & Co., Aggersund, Hernosand, 5,300 bls. sulphate, 1,060 tons.
E. M. Sergeant & Co., Aggersund, Hernosand, 3,450 bls. sulphite, 575 tons.
Bulkley, Dunton & Co., Aggersund, ——, 4,200 bls. sulphite, 840 tons.
Bulkley, Dunton & Co., Aggersund, ——, 1,250 bls. sulphate, 250 tons.
J. Anderson & Co., Aggersund, Stugsund, 2,500 bls. sulphite, 500 tons.
Chemical National Bank, Aggersund, Iggesund, 1,500 bls. sulphate, 300 tons.
Bulkley, Dunton & Co., Aggersund, ——, 750 bls. sulphate, 150 tons.
M. Gottesman & Co., Inc., Aggersund, Stockholm, 250 bls. sulphate, 50 tons.
Castle & Overton, Inc., Muenchen, Bremen, 547 bls. wood pulp.
Bulkley, Dunton & Co., Bergerdyk, ——, 400 bls. wood pulp.
Bulkley, Dunton & Co., Hellig Olav, ——, 400 bls. wood pulp.
Bulkley, Dunton & Co., Innaren, ——, 350 bls. wood pulp.

(*Continued on page 64*)

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED
and
MACHINE FINISHED BOOK
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Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

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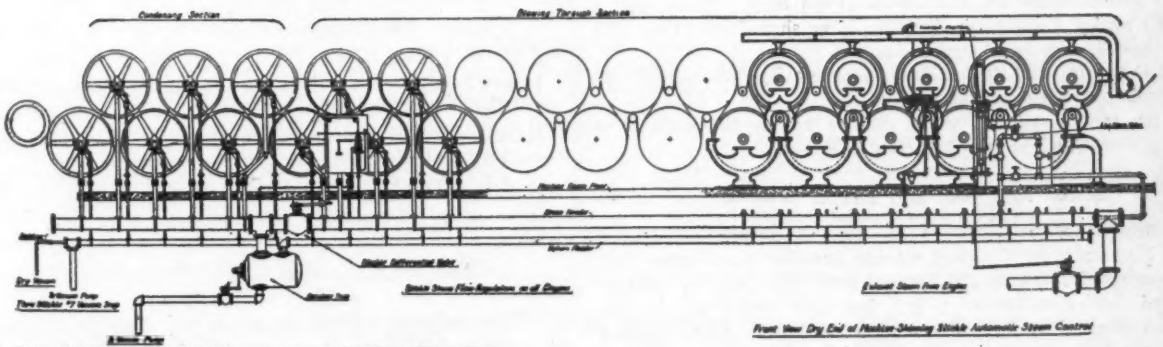

Back View With End of Machine Showing Stickle Compound Differential Rapid Circulating Drainage System

Front View Dry End of Machine Showing Stickle Automatic Steam Control

The Stickle Automatic Steam Control and Differential Rapid Circulating Drainage System will automatically maintain an evenly dried sheet at the lowest possible pressure at which a sheet of paper can be dried. The sheet will be held close to a one-half of one per cent moisture change.

Ask for Bulletin No. 18

STICKLE STEAM SPECIALTIES CO.
New York INDIANAPOLIS, IND. Boston

Imports of Paper and Paper Stock

(*Continued from page 62*)

BALTIMORE IMPORTS

WEEK ENDING AUGUST 20, 1927

A. W. Fenton, Inc., Ala, Antwerp, 46 bls. rags.
National City Bank, Ala, Antwerp, 473 bls. rags.
Congoleum Nairn Co., Ala, Antwerp, 423 bls. rags.
Certainteed Products Corp., Westerner, Rotterdam, 107 bls. rags.
A. W. Fenton, Inc., Westerner, Rotterdam, 242 bls. rags.
Castle & Overton, Inc., Westerner, Rotterdam, 1,080 bls. wood pulp, 172 tons.
Bulkley, Dunton & Co., Inc., Westerner, ——, 751 bls. wood pulp, 152 tons.
Bulkley, Dunton & Co., Carl Legien, ——, 125 bls. wood pulp.
Bulkley, Dunton & Co., Sagoporack, ——, 625 bls. wood pulp, 127 tons.
Bulkley, Dunton & Co., Mette Jensen, ——, 2,875 bls. wood pulp.
Buck, Kiaer & Co., Inc., Mette Jensen, Sikea, 3,000 bls. sulphite.
M. Gottesman & Co., Inc., Mette Jensen, Stockholm, 4,250 bls. wood pulp.
M. Gottesman & Co., Inc., Braheholm, Stockholm, 5,400 bls. wood pulp.
M. Gottesman & Co., Inc., Laponia, Stockholm, 1,500 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING AUGUST 20, 1927

Castle & Overton, Inc., Labette, England, 1 ble. bagging.
Castle & Overton, Inc., City of Weatherford, Germany, 246 bls. rags.
Castle & Overton, Inc., Chicago, France, 106 bls. rags.

NEWPORT NEWS IMPORTS

WEEK ENDING AUGUST 20, 1927

M. Gottesman & Co., Inc., Malmen, Stockholm, 2,500 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING AUGUST 20, 1927

The Borregaard Co., Inc., Malaren, Gothenburg, 1,000 bls. wood pulp.
D. M. Hicks, Inc., Malaren, Gothenburg, 125 bls. sulphite.
Johanson, Wales & Sparre, Inc., Malaren, Gothenburg, 250 bls. sulphate.
J. Anderson & Co., Malaren, Gothenburg, 3,125 bls. sulphite.
Beech Nut Packing Co., Malaren, Gothenburg, 201 rolls wrapping paper.
Brown Bros. & Co., Francisco, Hull, 68 coils old rope.
Castle & Overton, Inc., Seattle Spirit, Germany, 691 bls. wood pulp.
Buck, Kiaer & Co., Inc., Louisiana, Oslo, 200 bls. sulphite.
Bulkley, Dunton & Co., Binnendyk, ——, 137 bls. wood pulp.
Bulkley, Dunton & Co., Citos, ——, 3,300 bls. wood pulp.
Bulkley, Dunton & Co., West Harcuvar, 1,225 bls. wood pulp.
Bulkley, Dunton & Co., Fernhill, ——, 1,500 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING AUGUST 20, 1927

Parsons & Whittemore, Inc., Fernhill, Skelleftea, 762 bls. wood pulp.
Price & Pierce, Ltd., Fernhill, Skelleftea, 10,320 bls. wood pulp.
True & McClelland, Chelma, Marseilles, 111 bls. rags.
J. Lang Paper Co., Chelma, Marseilles, 239 bls. rags.
Darmstadt, Scott & Courtney, Chelma, Marseilles, 117 bls. rags.
Union National Bank, Chelma, Marseilles, 181 bls. rags.
E. J. Keller Co., Inc., Saugus, ——, 420 bls. rags.
Castle & Overton, Inc., Boston City, England, 165 bls. rags.
Castle & Overton, Inc., Denderah, Germany, 72 bls. rags.
Castle & Overton, Inc., Caracoli, France, 196 bls. rags.
Buck, Kiaer & Co., Inc., Louisiana, Oslo, 200 bls. sulphite.
Bulkley, Dunton & Co., Seostris, ——, 375 bls. wood pulp.

PORTLAND IMPORTS

WEEK ENDING AUGUST 20, 1927

Atterbury Bros., Inc., Malaren, Stockholm, 300 bls. sulphite.
Waterfalls Paper Mills, Malaren, Gothenburg, 6,000 bls. wood pulp.
Waterfalls Paper Mills, Malaren, Gothenburg, 24 bls. paper.

Pomerene Tells How Root Made Him Speechless

"I was knocked speechless one day several years ago in a committee room in the Senate, and the serious gentleman who administered the verbal silencer was Senator Root, of New York," said Atlee Pomerene, former United States Senator from Ohio, at the Waldorf yesterday before sailing for Europe on the George Washington.

"I was new in the Senate, and Senator Root was about to leave it. Senator Morgan summoned a bunch of us to a conference, and passed around the cigars before I got there. 'Thank you, I don't smoke,' I said to the Senator, as he shoved one at me, and I repeated when he offered a cigarette.

"'Pomerene,' said Root, with his usual gravity, 'What do you do to make yourself smell like a man?'

"His remark knocked me out cold. I was too flabbergasted to try a comeback."—*New York Herald Tribune.*

Sefton Mfg. Co. and Dixon Will Merge

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., August 15, 1927.—A merger of the Sefton Manufacturing Company, owning factories in Anderson, Ind., Chicago and Brooklyn and Dixon board mill, operating a strawboard factory at Carthage, Ind., has been consummated. The Dixon plant, it is explained in reports from Anderson, will provide the Sefton paper box factories with raw material. The consolidated companies will operate under the name of Sefton, Incorporated. It is expected that the proximity of Carthage to Anderson will mean increased production at the Anderson Sefton plant. The Dixon factory at Carthage produces 150 tons of straw board daily.

An Unique Advertising Sign

The Pusey and Jones Corporation, of Wilmington, Del., have taken a very novel way of telling the world how good business is in their location. A mammoth sign has been erected on one of their factory buildings, facing the Main-Line-to-the-South Pennsylvania Railroad tracks. The sign draws attention to the fact that the Pusey and Jones Corporation are now building the world's widest and fastest machine to make kraft paper and the largest yacht ever constructed in America.

Cellulose Div. To Meet at Detroit

The Cellulose Division of the American Chemical Society will meet at the Hotel Statler, Detroit, Mich., Wednesday, September 7. A very interesting program for the meeting has been arranged. Bjarne Johnsen, director of laboratories of the Hammermill Paper Company, Erie, Pa., is chairman of the Division and E. J. Sherrard is secretary.

The program for the meeting is as follows:

H. LeB. Gray. The Preparation of Standard Cellulose.

G. J. Ritter. Determination of Alpha-Cellulose in Wood Pulps and Cotton Linters.

George L. Clark. Contribution of X-Ray Science to the Analysis of the Structure of Cellulose

Harold Hibbert. Estimation of Furfural and Its Bearing on the Constitution of Carbohydrates and Polysaccharides.

G. Bertrand and Louis E. Wise. Fremy's Vasculose.

G. J. Ritter. Composition and Structure of the Cell Wall of Wood.

G. J. Ritter and L. C. Fleck. The Effect of Chlorination on Wood.

E. C. Sherrard and P. B. Davidson. The Effect of Successive Hydrolyses on Wood.

L. F. Hawley and W. Rosen. Relation between Resin Content and Tar in the Destructive Distillation of Wood.

J. L. Parsons. Recent Work on Oxidized Cellulose.

E. C. Sherrard. Report of the Copper Number Committee.

E. K. Carver. Report of Committee on Plasticity and Viscosity.

Plans for Another Mill at Kelso, Wash.

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 12, 1927.—The first definite step in securing a second paper manufacturing plant at Kelso, Wash., was taken when a committee was appointed by the Kelso Club to arrange for a desired site. The committee consists of A. D. Byram, George N. Norris and J. Frank Scott. An option has been secured on property known as the McLane tract for $10,000.

Cotton and Paper Rolls
Super Calenders
Friction Calenders
Embossing Calenders
Hydraulic Presses and Pumps

Successors to the Granger Foundry & Machine Co.

The Textile-Finishing Machinery Company
PROVIDENCE, R. I.

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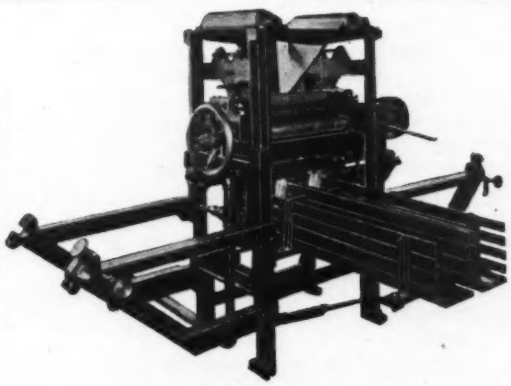

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TYPE "B" IRON EXTRACTOR *for* **PAPER MAKING**

It consists of special magnetic surfaces of great power over which the paper stuff is made to pass. As a result, all the iron and many other foreign substances are completely extracted. Hundreds of these devices are in use daily and no one of them has failed to give complete satisfaction. Write us for Bulletins and full data.

THE ROLAND T. OAKES CO., Holyoke, Mass.
Electrical Specialists. *Established 1885*

New York Market Review

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 24, 1927.

Although trading in the local paper market during the past week was mostly along routine lines, a satisfactory volume of inquiries are around for future business and the outlook for the closing months of the year is encouraging. Quotations in practically all of the sections of the industry remain steady and reports of shading are infrequent.

Conditions in the news print market are fairly satisfactory. Shipments against contract are proceeding in a normal manner. Spot offerings are ample for the current demand. According to the News Print Service Bureau, during July the United States mills operated at 81.5 per cent of rated capacity and the Canadian mills at 80.5 per cent.

The position of the paper board market is steadily improving and production is being accelerated in order to keep pace with consumption. Prices rule steady to firm. The fine paper market is exhibiting a strong undertone, with quotations holding up to previously reported levels. Not much change has transpired in the coarse paper market. Wrapping paper and summer specialties are still in good request.

Mechanical Pulp

While the ground wood market has been rather quiet of late, both imported and domestic mechanical pulp is moving into consumption at a normal pace, mostly on contract requirements. Spot trading has been dull of late, with offerings more than sufficient to take care of the current demand. Prices have been holding up to schedule, in most instances.

Chemical Pulp

Demand for both imported and domestic chemical pulp is about normal for the season of the year. Supplies continue to move into consumption in good volume. More interest appears to be developing in future business and in many quarters a busy autumn season is anticipated. Prices generally remain steady to firm, with little talk of concessions around.

Old Rope and Bagging

Both domestic and imported old rope are in fairly good request and quotations are mostly holding up to the previously reported schedule. The various grades of bagging are beginning to arouse more interest from the paper mills and a decided improvement is looked for when the autumn activities get under way. Prices remain unaltered.

Rags

Some improvement was noticed in the local rag market during the past week. Domestic rags are reported to be in better request than for some time and there is also a better feeling in the imported rag market. No radical price changes were recorded, however, but quotations are likely to become firmer when the demand increases to any extent.

Waste Paper

Inquiries for paper stock are being received from the board mills in increased volume and the condition of the waste paper market is stronger than for some time past. Collections are well up to average. There also appears to be no undue accumulation of any of the various grades and prices show a tendency to become firmer.

Twine

Seasonal conditions continue to prevail in the twine market. Although the amount of business being transacted at present is rather small, it is felt that this condition is only temporary, and a general revival of activity is anticipated after Labor Day. Prices continue steady and are holding up to recently reported levels with little difficulty.

Portland Envelope Co. Organizes

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., August 26, 1927.—The Portland Envelope Company is a newly organized concern in Portland, Oregon. The company expects to build a factory on a site yet to be chosen, several options having been taken on desirable locations. The factory will have close working connections with the Rocky Mountain Envelope Company of Denver. A. A. McFarland, formerly district sales manager of the Rocky Mountain Envelope Company, will be the general manager of the new factory.

Machinery for the plant has already been ordered and is now enroute to Portland, and installation will await the choosing of a suitable building.

"The company is financed by western business men," says Mr. McFarland, 'and Portland was selected after a keen survey of the Pacific Coast territory. We consider that Portland will be an advantageous point of distribution for the entire Pacific Coast territory, as the low steamship rates cut costs in transportation. And besides the paper for the manufacture of our product is obtainable from nearby paper mills."

The initial output of the company will be 250,000 envelopes a day, and probably as the market develops this output will be doubled.

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., August 24, 1927.—The Government Printing Office has received the following bids for 36,000 pounds of various sizes binders board: Mathers-Lamm Paper Company, $101.90 per ton; R. P. Andrews Paper Company, 88.90; Barton, Duer & Koch Paper Company, $122.00 and $107.00; Dobler & Mudge, $102.00; and the Davey Company, $99.50.

The following bids have also been received for 1,110 pounds of 40 x 60—444, rope manila paper: Mathers-Lamm Paper Company, at 14 and 15.25 cents per pound; Whitaker Paper Company, 14.4 cents; and Lindemeyr & Harker Paper Company, 13.9 cents.

The Government Printing Office has received the following bids for 100 pounds of 24x38½ parchment copying tissue paper: William Mann Company, $3.40 per ream; R. P. Andrews Paper Company, $3.60 and $4.20; Japan Paper Company, $9.00 less 2 per cent, $20.00 and $27.50; Mathers-Lamm Paper Company, $7.00.

E. L. Childs Dead

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., August 22, 1927.—E. L. Childs, manager of the printing and box division of the Shaw Stocking Company, Lowell, Mass., died Wednesday, August 17. Mr. Childs had been with that company for many years, but was formerly of the Warner & Childs Company, Inc., manufacturers of corrugated containers, Boston.

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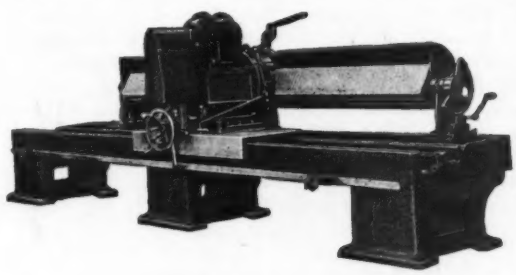
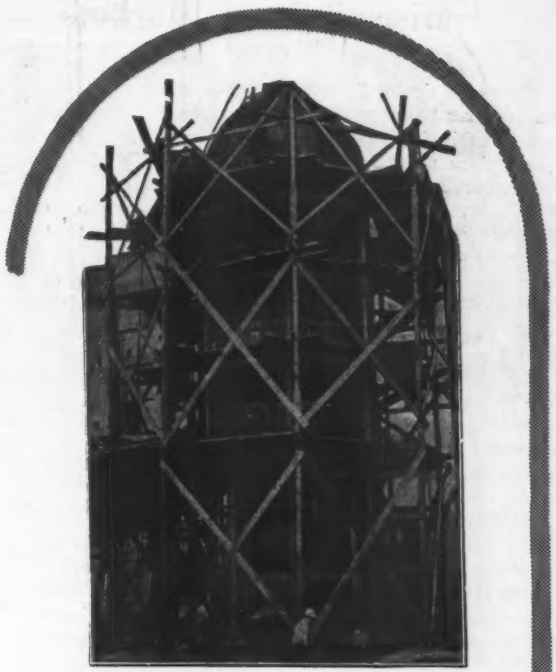


The constantly increasing use of the new traveling grinding wheel machines for paper knife grinding makes our new Mammoth Grinder now almost a universal favorite for this service.

The view here given shows the machine equipped with magnetic chuck for knives, shear blades and surface grinding. This favorite machine of recent years is now better than ever before.

Machinery Company of America
Big Rapids, Michigan U. S. A.



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2. **Highest class of workmanship is maintained throughout.**
3. **All pieces are precision-made.**
4. **Heavily and durably constructed.**
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Our experience of over a quarter century in designing and building Digesters, Incinerators, Disc Evaporators, Refiners, Barking Drums, Blow Pipes, Globe and Cylindrical Rotaries, Rod Mills and other equipment, is your guarantee of satisfaction.

Write us today about your requirements.

Manitowoc Engineering Works
MANITOWOC, WISCONSIN

MANITOWOC

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Wednesday, August 24, 1927.

Trading in the local chemical market during the past week continued along generous lines. Consumption has been heavier than usual at this time of the year and manufacturers have been encouraged to maintain production at nearly full capacity. The contract movement in nearly all of the chemicals used in the paper mills is well up to average. Prices remain unchanged, in most instances, and there has been an absence of shading.

BLANC FIXE.—No new developments have transpired in the blanc fixe market and the demand for the pulp and the powder is being well maintained. Quotations remain unaltered. The pulp is quoted at $60 per ton, in bulk. The powder is still selling at from 4 cents to 4½ cents a pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder has been very satisfactory of late. Contract withdrawals continue to move at a steady pace. A good number of inquiries are also in the market for future business. Prices are steady to firm. Bleaching powder is still quoted at from $2 to $2.40 per 100 pounds, in large drums, at works, according to quantity.

CAUSTIC SODA.—Large contract shipments of caustic soda continue to go forward into consumption. Prices rule steady and the schedule is being well maintained. Solid caustic soda is quoted at from $3 to $3.10 per 100 pounds, in large drums, at works. Spot car lots are selling at from $3.20 to $3.25 per 100 pounds. The flake and ground are quoted at around $3.50 per 100 pounds.

CASEIN.—Steadiness prevails in the casein market and the recently advanced prices are holding up very well. Offerings of both the domestic and foreign product are rather limited at present. Domestic casein is quoted at from 17 cents to 18¼ cents per pound. Imported casein is selling at from 18 cents to 18¼ cents a pound, all in bags, car lot quantities.

CHINA CLAY.—The position of the china clay market is sound. While the prevailing demand is mostly seasonal, contract withdrawals continue to move at a steady pace. Prices remain unchanged. English china clay is still quoted at from $15 to $25 a ton, ship side. Domestic paper makers' clay is offered at from $8 to $9 a ton, in bulk, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—Shipments of chlorine continue to go forward in good volume and the market is very steady. Prices are being maintained without difficulty. Chlorine is still quoted at 4 cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 4¼ cents to 4½ cents a pound.

ROSIN.—Most of the demand for rosin during the past week was along routine lines. Prices continue to fluctuate slightly. At the naval stores, the grades of gum rosin used in the paper mills are now quoted at $10.85 per 280 pounds, in barrels, ship side. Wood rosin is selling at $9.50 per 280 pounds, southern shipping points.

SALT CAKE.—The salt cake market is exhibiting a strong tendency. Contract shipments continue to move into consumption in satisfactory volume. Prices remain steady to firm. Salt cake is still selling at from $18 to $19 a ton, in bulk, at works. Chrome salt cake is quoted at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Production of soda ash is being maintained in sufficient volume to take care of the current demand. Contract shipments continue to move forward at a steady pace. Prices remain unaltered. Contract quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.20; in bags, $1.32½, and in barrels, $1.57½.

STARCH.—Conditions in the starch market are practically unchanged. The prevailing demand is seasonal and offerings are quite adequate to take care of current requirements. Prices are holding up to formerly quoted levels. Special paper makers' starch is selling at $3.07 per 100 pounds, in bags, and at $3.24 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—The tone of the sulphate of alumina market during the past week was steady. Supplies continue to move into consumption at a normal rate. Prices are being maintained at former levels. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.45 per 100 pounds. The iron free is selling at from $2 to $2.05 per 100 pounds, in bags, at works.

SULPHUR.—Normal conditions continue to rule in the sulphur market. Demand from the paper mills is persistent and contract shipments are moving in excellent volume. Sulphur is still selling at from $18 to $19 a ton, in bulk, at mine, according to quantity. The spot quotation remains unchanged at $20 per ton.

TALC.—Business in the talc market is fairly satisfactory for the time of the year. Manufacturers report a steady request for this product and prices remain unaltered. Quotations on domestic talc range from $16 to $18 a ton, at eastern mines. French talc is selling at from $18 to $22 a ton, ship side.

Collar City Paper Co. Files Schedules

[FROM OUR REGULAR CORRESPONDENT]

COHOES N. Y., August 15, 1927.—The Collar City Paper and Board Manufacturing Company, Inc., with a paper mill and boxboard plant in this city on Reusselaer avenue East Side, has liabilities of $153,952 and assets of $109,491, according to schedules filed with the United States District Court in Utica Wednesday. An involuntary petition in bankruptcy was filed against the company recently by Attorney Walter H. Wertime, of this city, acting for a group of creditors. Sylvester R. Benson, of Cohoes, is receiver for the firm, acting under an appointment from Federal Judge Cooper.

In the bankruptcy schedules filed Wednesday Joseph, Harry, Jacob, Herman and Benjamin Symansky claiming $52,775 in wages are among the secured creditors. The W. W. Snyder Manufacturing Company, of this city, is secured for $62,700 by a mortgage on the real estate of the firm which is valued at $90,000.

Eighty creditors are listed in the schedules. Among these are James Eagan $1,063; American Electric Service Company, $376; Maurice Levin $142; Peterson & Packer $500; Powers & Powers $155 and Arthur Tutein $147. All above creditors are from Troy.

Others are Albany Felt Company, $838; D. & H. Railroad Company. $399; State Insurance Fund $525; L. E. Stewart & Sons, $209; Townsend Furnace Company, $216, all of Albany.

Mohawk Papermakers Inc., Cohoes, claims $426; American Multitone Papers Company, Cohoes, $224; John L. Payette & Co., Cohoes, $419; Sweet & Doyle Inc., Cohoes, $410. The Finance and Guaranty Company, of Baltimore, Md., is a creditor for $32,000.

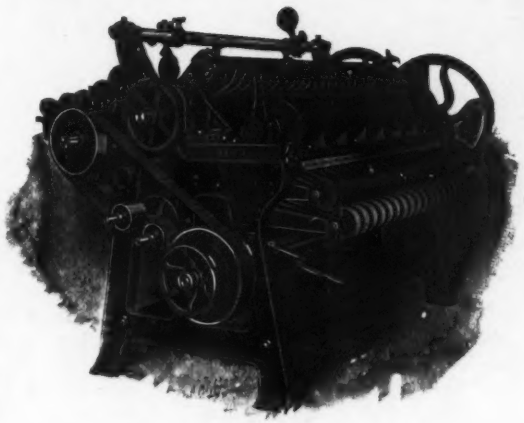
The schedules were filed through Clinton, Scott & McNamee, attorneys of Troy, representing the Collar City Paper and Board Manufacturing Company.

Goes With Gummed Products Co.

TROY, Ohio, August 8, 1927—W. R. Lusignea, formerly a director of the McLaurin-Jones Company and general manager of Samuel Jones Company, their predecessor, has associated himself with the Gummed Products Company, manufacturers of gummed paper and cloth. Mr. Lusignea has been actively engaged in the gummed paper business for the past twenty-two years. He was with the same concern during the entire period until a few months ago. He is in charge of manufacturing and production.

In 1905 he started work in the London factory office of Samuel Jones & Co., manufacturers of gummed papers. During 1910 he was chosen with Harold R. Butler to start the company's branch plant at Newark, N. J., as factory manager and partner. He became general manager of the Newark plant in 1918. In 1921 he negotiated for his English partners the merger of their American branch with two other concerns into a new company. In this connection he continued as director until his resignation last January.

Paper Cutters
Single, Duplex and Diagonal



CUTTER KNIVES PATENT TOP SLITTER

HAMBLET MACHINE CO.
LAWRENCE MASS.

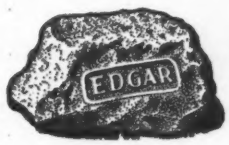
Clay
300 tons daily
AMERICAN MADE FOR AMERICAN TRADE

Some portion of our clay production is *pulverized.* That part of it which is *pulverized* is, as far as we know, the only *pulverized clay* which is washed and refined before being pulverized.

This insures greater freedom from impurities and an exceedingly uniform product.

Prices of M-E pulverized clay may surprise you even considering this additional treatment.

Let us submit sample and quote you.



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MINER-EDGAR CO.
110 William St.,
NEW YORK

For reliable running and average long life

LINDSAY FOURDRINIER WIRES

are unsurpassed

We make them for the largest and fastest machines.

Cylinder Wires All Sizes

The Lindsay Wire Weaving Co.
Collinwood Sta. CLEVELAND, OHIO

HG&CO

H. G. CRAIG & CO.
INCORPORATED

Paper Merchants
(Since 1868)

News
Hanging
Specialties
Mill Supplies

17 East 45th St. NEW YORK, N. Y.

Market Quotations

Quoted by Hepburn & Co., 74 Broadway, N. Y. City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	OFFERED
Advance Bag & Paper, 7s 1943	105	107
A. P. W. Pulp & Power, 7s 1945	101	102
American Writing Paper, 6s 1947	79	82
Bastrap. Pulp & Paper, 6½s 1940	100	103
British Columbia Pulp & Paper, 6s 1950	85	90*
Beaver Products Corp., 7½s 1942	106	109
Berkshire Hills Paper, 8s 1941	60	80
Brown Paper Co., 1st 5½s 1946	94	98
Bryant Paper Co., 6s 1942	100½	102
Cape Breton Pulp & Paper, 6s 1932	101	103
Central Paper Serial 6, 6½s 1942	89	...
Champion Coated Paper, 6s 1926 to 1932	99	...
Champion Fibre, 8s 1930	100	...
Champion Paper Corp'n, 1st 6s 1945	95	97
Continental Paper Products, 6½s 1943	88	91½
Cornell Wood Prod., 7½s 1937	100	104*
Crown Willamette Paper, 6s 1951	97	101
Donnaconna Paper, 6s 1940	101	102½
Dells Paper & Pulp Serial, 6s 1926-38	*95	...
Eastern Mfg. Co., 7s 1938	89	91
Eddy Paper, 7½s 1931	102	104
Escanaba Paper Serial, 6s 1926-39	94	96
Filer Fibre Serial, 7s 1926-39	95	...
Fort Orange Paper, 7s 1942	95	100*
Fox River Paper, 7s 1931	99	...
Gair Co. (The Robt.), 7s 1937	104	106
Gilbert Paper Co., 6½s 1926-29	89	...
Hammermill Paper, 6s 1939	100	103*
Hoberg Paper & Fibre, 7s 1937	94½	96
Itaska Paper & Prairie River Power, J+5½s 1926-38	94	96*
Itaska Paper, 1st 6s 1933-38	96	98*
Kalamazoo Veg. Parchment, 6s 1938	98	...
Marinette & Menominee, 7½s 1936	103½	105
Menasha Printing & Carton, 6½s 1939	99½	...
Mengel Company, 7s 1926 to 1934	103	...
Monroe Paper Products, 7½s 1932	96	...
Munising Paper, 6s 1927-36	96	100
Nekoosa Edwards, 1st Ref. 6s 1928 to 1942	96	99*
Orono Pulp & Paper, 6s 1943	98	...
Orono Pulp & Paper, 5s 1941	94	...
Oswego Falls Corp., 6s 1941	98	100*
Oxford Paper, 6s 1947	104	...
Paepcke Paper Mills, 7s 1930	99	None
Parsons Pulp & Lumber, 7s 1928	97	...
Parker Young Co., 6½s 1944	96½	98½
Paterson Parchment Paper, 6s 1938	100½	102
Penobscot Chemical Fibre, 6s 1942	98	...
Poland Paper, 7s 1930	98	...
Port Alfred Pulp, 6½s 1943	*96	...
Queens City Paper, 7s 1932	95	100*
Richardson Co., 6s 1938	100	...
Spanish River Pulp & Paper, 8s 1941	106	110
Stevens & Thompson Paper, 6s 1942	93	95
St. Anne Paper, 6½s 1946	95½	98*
St. Croix Paper, 5s 1926-37	95	98*
St. Regis Paper Serial, 6½s 1926-35	98½	...
Tait Paper & Color Industries, 6s 1934	90	95
Taggart Bros. Co., 6s 1944	94	97
Ticonderoga Pulp & Paper, 5s 1930	95	98
Ticonderoga Pulp & Paper, 6s 1940	99	101
Warren (The S. D.) Company, 6s 1945	99	101
Wotab Paper, 6½s 1943	102	...
Westfield River Paper, 7s 1926-43	Wanted	...
Whitaker Paper, 7s 1942	106	108
Witmer-Parsons Pulp & Lbr. (Units)	63	70

STOCKS	BID	ASKED
Advance Bag & Paper, 8% Pfd.	97	100*
Am. Tissue Mills, 7% Pfd.	95	100
British Columbia P. & P., Pfd	65	70
Brompton Pulp & Paper, 8% Pfd.	93	98*
Brown Corpn., 7% Pfd.	97	100*
Champion Fibre, 7% Pfd.	105	...
Diem & Wing, 7% Cum. Pfd.	87	...
Donnaconna Paper, Com.	58	...
Donnaconna Paper, Pfd.	95	100
Eastern Mfg. Co., 1st Pfd.	34	37
Great Northern Paper (new)	62	65
Hammermill Paper, 7% Pfd.	105	110
Hinde & Dauch, Com.	135	...
Hinde & Dauch, Pfd.	100	...
Holyoke Card & Paper	150	None
Marathon Paper Mills, Com.	125	...
Midwest Box Co., Pfd. 8%	80	85
Midwest Box Co., Pfd. 6%	55	65
Louis De Jonge Co., 7% Pfd.	93	96
Oxford Papers, Com.	170	...
Oxford Paper Co., Pfd.	175	...
Penobscot Chemical Fibre, Com.	65	75*
Richardson Co., 7% Pfd.	104	...
Rubberoid Company (Ex. Rights)	66	71
Seaman Container, Class B (par $1)	1	None Off.
Seaman Paper Co.	Wanted	None Off.
St. Croix Paper	150	170
St. Regis Paper Co., 7% Cum. Pfd.	101½	None
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper, Com.	52	57
West Virginia Pulp and Paper Pfd.	100½	102½
Whittaker Paper, 7% Cum. Pfd.	97	103

* Nominal.

Paper

(F. o. b. Mill)

Ledgers	11.00 @38.00
Bonds	9.00 @45.00
Writings—	
Extra Superfine	14.00 @32.00
Superfine	14.00 @32.00
Tub sized	10.00 @15.00
Engine Sized	8.00 @11.00
News—	
Rolls, contract	3.25 @ —
Rolls, transient	3.25 @ 3.50
Sheets	3.65 @ 3.85
Side Runs	3.00 @ 3.75
Book, Cased—	
S. & S. C.	6.35 @ 7.75
M. F.	6.25 @ 7.75
Coated and Enamel	8.00 @15.00
Lithograph	8.00 @15.00
Tissues—Per Ream—	
White No. 1	.75 @ 1.00
Anti-Tarnish	1.10 @ 1.90
Colored	1.00 @ 2.00
White No. 2	.75 @ .85
Kraft	.90 @ 1.00
Manila	.75 @ .85
Kraft—	
No. 1 Domestic	6 25 @ 6.50
No. 2 Domestic	5.25 @ 5.50
Southern	4.75 @ 5.25
Imported	6.50 @ 7.00
Manila—	
No. 1 Jute	9.00 @ 9.25
No. 2 Jute	7.75 @ 8.50
No. 1 Wood	4.75 @ 5.25
No. 2 Wood	4.00 @ 4.50
Butchers	3.75 @ 4.25
Fibre Papers—	
No. 1 Fibre	5.00 @ 5.50
No. 2 Fibre	4.75 @ 5.25
Common Bogus	2.75 @ 3.00
Screenings	3.00 @ 3.25
Card Middles	4.00 @ 5.00
Glassine—	
Bleached, basis 25 lbs.	13.00 @16.00
Bleached, basis 20 lbs.	15.00 @16.00

(Delivered New York)

Boards—per ton—	
News	47.50 @50.00
Straw	53.50 @57.50
Chip	45.00 @50.00
Binders' Boards	70.00 @75.00
Sgl. Mla. Ll. Chip	55.00 @57.50
Wood Pulp	80.00 @85.00
Container	65.00 @70.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—	
Moist	28.00 @30.00
Dry	32.00 @34.00

(F. o. b. Mill)

No. 1 Domestic	27.00 @30.00
Screenings	15.00 @20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—	
Bleached	3.50 @ 4.50
Easy Bleaching	2.85 @ 3.10
No. 1 strong unbleached	2.50 @ 2.75
Mitscherlich unbleached	2.65 @ 3.40
No. 2 strong unbleached	2.40 @ 2.55
No. 1 Kraft	2.70 @ 2.90
No. 2 Kraft	2.50 @ 2.60
Sulphate—	
Bleached	3.75 @ 4.00

(F. o. b. Pulp Mill)

Sulphite (Domestic)—	
Bleached	3.40 @ 4.75
Easy Bleaching Sulphite	2.85 @ 3.05
News Sulphite	2.50 @ 2.70
Mitscherlich	3.25 @ 3.70
Kraft (Domestic)	2.70 @ 3.40
Soda Bleached	3.50 @ 3.75
Sulphate Screenings—	
Coarse	.75 @ .85
Refined	1.50 @ 1.85

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—	
New White, No. 1	11.50 @12.00
New White, No. 2	8.00 @ 8.50
Silesias No. 1	7.25 @ 7.75
New Unbleached	10.25 @10.75
Washables	4.25 @ 4.75
Fancy	5.50 @ 6.00
Blue Overall	6.75 @ 7.25
New Blue Prints	5.25 @ 5.50
New Soft Blacks	5.25 @ 5.75
Mixed Khaki Cuttings	4.50 @ 5.25
Pink Corset Cuttings	8.00 @ 8.50
O. D. Khaki Cuttings	5.00 @ 5.50
Men's Corduroy	3.75 @ 4.25
New Mixed Blacks	3.50 @ 3.75

Old Rags

White, No. 1—	
Repacked	5.75 @ 6.50
Miscellaneous	4.75 @ 5.25
White, No. 2—	
Repacked	3.25 @ 3.75
Miscellaneous	2.75 @ 3.00
St. Soiled, White	2.50 @ 2.75
Thirds and Blues—	
Repacked	2.25 @ 2.50
Miscellaneous	1.75 @ 2.00
Black Stockings	3.25 @ 3.75
Roofing Rags—	
Cloth Strippings	1.60 @ 1.70
No. 1	1.60 @ 1.70
No. 2	1.35 @ 1.45
No. 3	1.25 @ 1.35
No. 4	1.25 @ 1.35
No. 5A	.95 @ 1.05

Foreign Rags

New Light Silesias	7.00 @ 7.50
Light Flannelettes	7.75 @ 8.50
Unbleached Cottons	10.00 @11.00
New White Cuttings	10.50 @11.50
New Light Oxfords	7.00 @ 7.50
New Light Prints	5.50 @ 6.50
New Mixed Cuttings	3.00 @ 3.50
New Dark Cuttings	2.75 @ 3.25
No. 1 White Linens	7.00 @ 7.75
No. 2 White Linens	5.25 @ 6.00
No. 3 White Linens	4.00 @ 4.50
No. 4 White Linens	3.00 @ 3.50
Old Extra Light Prints	2.75 @ 3.25
Ord. Light Prints	2.25 @ 2.50
Med. Light Prints	1.90 @ 2.10
Dutch Blue Cottons	2.25 @ 2.50
German Blue Linens	2.50 @ 2.75
German Blue Cottons	2.00 @ 2.25
Checks and Blues	1.75 @ 2.00
Lindsay Garments	1.70 @ 1.75
Dark Cottons	1.55 @ 1.60
Shoppery	1.50 @ 1.55
French Blues	2.25 @ 2.50

Old Rope and Bagging

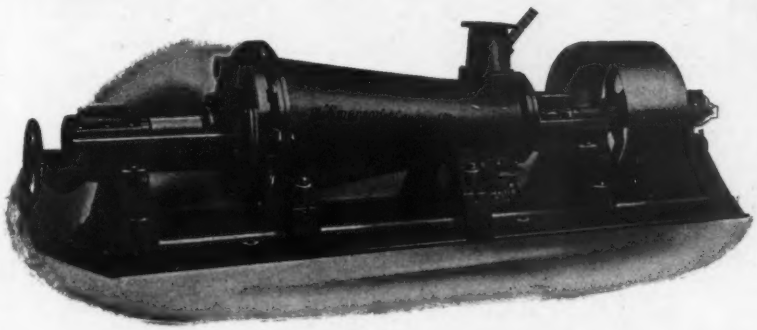
(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—	
Foreign	1.80 @ 1.90
Domestic	1.80 @ 1.90
Wool Tares, light	1.60 @ 1.70
Wool Tares, heavy	1.60 @ 1.70
Bright Bagging	1.60 @ 1.70
Small Mixed Rope	1.50 @ 1.65
Manila Rope—	
Foreign	3.25 @ 3.75
Domestic	4.25 @ 4.75
New Burlap Cut	3.00 @ 3.25
Hessian Jute Threads—	
Foreign	3.50 @ 4.00
Domestic	3.25 @ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—	
Hard, White, No. 1	3.25 @ 3.35
Hard, White, No. 2	2.75 @ 2.90
Soft, White, No. 1	2.75 @ 2.90
Flat Stock—	
Stitchless	1.25 @ 1.35
Overissue Mag.	1.25 @ 1.35
Solid Flat Book	1.15 @ 1.25
Crumpled No. 1	.80 @ .90
Solid Book Ledger	1.90 @ 2.10
Ledger Stock	1.40 @ 1.50
New B. B. Chips	.45 @ .55
Manilas—	
New Env. Cut	2.40 @ 2.60
New Cuttings	1.60 @ 1.85
Extra No. 1 old	1.25 @ 1.35
Print	.65 @ .75
Container Board	.50 @ .55
Bogus Wrapper	.70 @ .80
Old Kraft Machine Compressed bales	1.90 @ 2.00
News—	
No. 1 White News	1.60 @ 1.65
Strictly Overissue	.60 @ .70
Strictly Folded	.47½ @ .52½
No. 1 Mixed Paper	.37½ @ .42
Common Paper	.25 @ .30



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LAWRENCE, MASS.

See the Second-Hand Machinery ads and note the ABSENCE of

EMERSON BEATING ENGINES

They seldom wear out and are never thrown out. PERFECT CIRCULATION. NO "PADDLING."

The "EMERSON" JORDAN

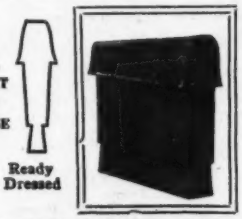
is made in several sizes, both belt and direct connected motor-drive.

WRITE FOR DETAILS

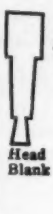
"READY DRESSED" **MILL COGS**

LABOR SAVING—TIME SAVING

THE MOST ECONOMICAL FILLING THAT CAN BE PUT IN A MORTISE WHEEL



Ready Dressed



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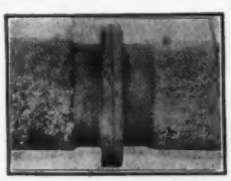
WE MAKE ANY STYLE OR SIZE WANTED

WRITE FOR INSTRUCTION SHEET "C" WHICH IS FREE

QUICK SERVICE ON ALL SIZES

THE N. P. BOWSHER CO., So. Bend, Ind.



Note: Flange Fits Flush. No Metal on Inside.

Changing the Piping of an entire Industry

It is true that Michigan Wood Pipe with Collar Flanges as illustrated is revolutionizing the Paper Mill Industry. Up to date Paper Mills are making the change as rapidly as possible. Some are changing entire Plant piping at once while others are changing line by line in order that production will not be held up.

The advantages are long life, no discoloration, power saving, larger capacity, light weight, easy to install, easy to take apart without damage, and cheaper.

Michigan Pipe Company, Bay City, Michigan

"Ask Your Neighbor What He Thinks of Them"

100 JENSSEN

Two-Tower Acid Systems now in operation or building.

Jenssen Spray Type Cooler
Bullard Gas Washer
Decker Cooking Process
Kamyr Feltless Machines
Kamyr Pulp Presses
Strindlund Relief Cooler

G. D. Jenssen Company
200 5th Ave. New York, N. Y.

The

ST. REGIS PAPER COMPANY

Daily Capacity 425 TONS

Newsprint, Catalog
Directory Papers
Butchers Manila
Packers Oiled Manila

General Sales Office

49 Wall St., New York

Farmers' Bank Bldg.
Pittsburgh, Pa.

Twines

(F. o. b. Mill)

Cotton—			
No. 1	.28	@	.29
No. 2	.26	@	.27
No. 3	.24	@	.25
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.05¾	@	.06¼
Southern Kraft	.04½	@	.05
No. 2 Kraft	.05	@	.05¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¾
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton—			
(Delivered Central Territory)			
Plain Chip	45.00	@	47.50
Solid News	47.50	@	—
Manila Line Chip	55.00	@	57.50
Container Lined—			
(Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	75.00

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06¾	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¾	@	.04
No. 1 Jute Manila	.09½	@	—
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05	@	.05¼
No. 1 Kraft	.06	@	.06¼
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	45.00	@	50.00
Chip Board	40.00	@	42.00
Wood Pulp Board (Carload Lots)	4.50	@	5.00
Binder Boards—			
No. 1, per ton	85.00	@	90.00
No. 2, per ton	70.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	66.00	@	68.00
Slaters	70.00	@	72.00
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.55	@	1.70
Best Tarred, 3-ply	2.10	@	2.15
No. 1 Mixed Paper	.65	@	.70

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	2.25
Domestic	1.75	@	2.00
Manila Rope	3.50	@	4.00
Sisal Rope	1.25	@	2.00
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.50	@	1.65
Wool Tares, heavy	3.00	@	3.50
Mixed Strings	1.25	@	1.35
No. 1, New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.25	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.50	@	3.60
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.80	@	2.90
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	1.90	@	2.00
Writing Paper	1.65	@	1.75
No. 1 Books, heavy	1.15	@	1.20
No. 2 Books, light	.80	@	.85
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.75	@	.80
Old Kraft	2.00	@	2.20
Common Paper	.40	@	.50
No. 1 Mixed Paper	.50	@	.60
Straw Board, Chip	.60	@	.65
Binders Board, Chip	.60	@	.65
Overissue News	.75	@	.80
Old Newspaper	.50	@	.60

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08
New Blue	.03½	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.04½	@	.05
Corduroy	03	@	.03¾
New Canvas	.08	@	.09
New Black Mixed	.05	@	.05½

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02½	@	.03
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.50	@	1.75
Black Stockings	3.25	@	3.50
Roofing Stock—			
No. 1	1.50	@	1.60
No. 2	1.37½	@	—
No. 3	1.25	@	1.35
No. 4	1.10	@	1.20
No. 5A	.90	@	1.00
B	.80	@	.90
C	.80	@	.90

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11½
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¼	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05¾	@	.06½
No. 2 Kraft	.04¾	@	.05¾
Common Bogus	.02	@	.02½
Delivered New England points			
Straw Board, rolls .009			57.50
Straw Board in Sheets, basis 35s to 70s			53.50
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board	57.50	@	62.50
Single White, patent coated board bender	75.00	@	82.50
Wood Pulp Board	80.00	@	85.00
Binder Boards	70.00	@	75.00
(F. o. b. Mill)			
Tarred Felts—			
Regular, carload lots	65.00	@	—

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.75	@	3.10
White Blank News	1.50	@	1.60
Manila Env. Cuttings	2.00	@	2.25
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.85	@	3.00
No. 1 Soft White	2.75	@	3.00
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	1.90	@	1.95
No. 1 Books, Heavy	1.17½	@	1.30
No. 1 Books, Light	—	@	1.15
Old Kraft	2.00	@	2.25
No. 1 Old Manila	1.40	@	1.60
No. 1 Mixed Paper	.50	@	.52½
Print Manila	.70	@	.80
Overissue News	.70	@	—
Old Newspapers	.55	@	—
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.50	@	1.60
Manila Rope—			
Foreign	3.75	@	—
Domestic	4.00	@	4.37½
Mixed Rope	1.05	@	1.15
Scrap Burlaps	1.35	@	—
Wool Tares, heavy	1.40	@	1.60
Mixed Strings	.90	@	1.05
New Burlap Cutting	2.15	@	2.25

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.11¼	@	.11½
Silesias, No. 1	.07	@	.07½
New Unbleached	.10	@	.10½
Fancy	.05¾	@	.06
Washable	.04½	@	—
Cottons—Acording to Grades—Blue—			
Blue Overalls	—	@	.07
New Black, soft	.04	@	.04¼
Khaki Cuttings	.05	@	.05½
Corduroy	.03	@	.03½
New Canvas	.09	@	.10

Domestic Rags (Old)

(Price f. o. b. Boston)

White No. 1—			
Repacked	5.00	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.12½	@	2.37½
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.45	@	1.55
No. 2	1.33	@	1.43
No. 3	.96	@	—
No. 4	1.10	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¼	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.75	@	—
No. 2 M. F. (carloads)	7.50	@	—
No. 3 M. F. (carloads)	7.25	@	—
No. 1 S. C. (carloads)	8.25	@	—
No. 2 S. C. (carloads)	8.00	@	—
No. 3 S. C. (carloads)	7.75	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.85	@	—
White Rag	5.25	@	—
"B" Manila	5.65	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.20	@	—
M. G.	7.35	@	—

Pulp

(F. o. b. Mill)

Ground wood	28.00	@	30.00
Sulphite easy bleaching	60.00	@	—
Sulphite news grade	55.00	@	58.00
Sulphite, bleached	78.00	@	80.00
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

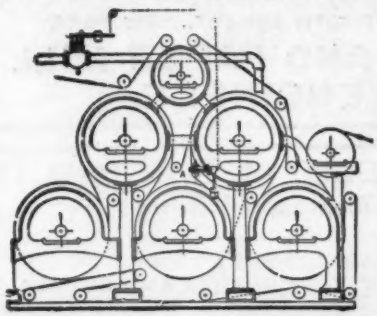
Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	3.00	@	—
White Blk. News	1.40	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.25	@	—
Light and Crumpled Book Stock	1.10	@	—
Ledgers and Writings	1.40	@	—
Solid Ledgers	1.40	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.47½	@	.52½
No. 1 Mixed Paper	.37½	@	.42

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.12	@	.12½
Fancy Shirt Cuttings	.06	@	.06¼

The Pickles Drying Regulator



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will do everything we claim for it and more. The test costs you nothing until you are satisfied. Many mills tried one and now have every machine equipped. Write for list of users and other information.

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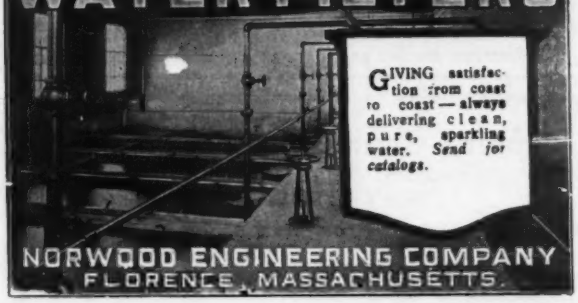

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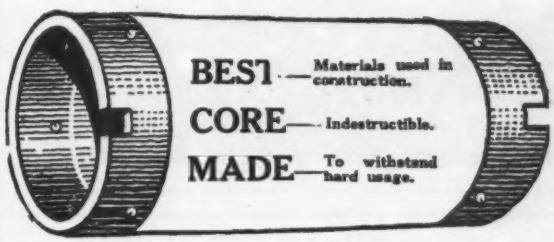

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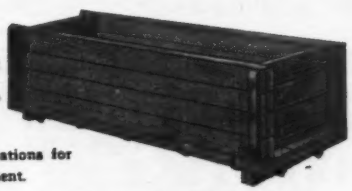

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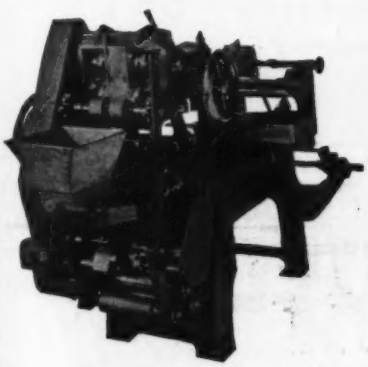

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HELP WANTED

WANTED—First-class sulphite cook with thorough experience in cooking high grade hemlock pulp. Give full information and reference in your reply. Address, Box 27-464, care Paper Trade Journal. S-1

WANTED—First-class cylinder tissue machine tenders, top felt. Must be sober men; reference required. Address, Box 27-461, care Paper Trade Journal. A-25

AN EXCEPTIONAL OPPORTUNITY for the right man. Must have knowledge of paper and paper boards, to take charge of mill department and correspondence. State age, past experience and other details. Address, Box 27-436, care Paper Trade Journal. A-25

PAPER TRADE readers find our Service effective in making connections. Individual. Confidential. Personally planned by Jacob Penn, known by all mill owners. Not agency. Jacob Penn, Incorporated, 9 Park Place, New York. tf.

IF YOU are open to overtures for new connection, and qualified for a salary between $2,500 and $25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service, of recognized standing and reputation, through which preliminaries are negotiated confidentially for positions of the calibre indicated. The procedure is individualized to each client's personal requirements; your identity covered and present position protected. Established sixteen years. Send only name and address for details. R. W. Bixby, Inc., 117 Downtown Building, Buffalo, New York. tf.

GET THE JOB you want through National Service, 10 Murray Street, New York. tf.

WANTED—Finishing Room Foreman. Must be familiar with finishing various kinds bleached and unbleached Fourdrinier and Cylinder sulphite papers. Must be experienced with operation of rewinders and cutters, able to handle help and run department efficiently. Give previous experience, age and references. Address, Box 27-486, care Paper Trade Journal. S-8

OPPORTUNITY for technically trained executive familiar with Kraft Pulp making. State education and experience and send copies of references with first letter. Address, Box 27-487, care Paper Trade Journal. S-15

BOSS MACHINE TENDER for a Canadian Kraft Mill making M. G. and M. F. papers. Address, Box 27-449, care Paper Trade Journal. A-25

WANTED—Experienced roofing dry felt mill superintendent for 72" single machine in Ohio. Must be able to produce. Give reference, age and experience. Address, Box 27-452, care Paper Trade Journal. tf.

HELP WANTED

SALESMEN! WE HAVE A NUMBER OF TERRITORIES OPEN FOR EXPERIENCED TOILET PAPER SALESMEN. WRITE US ARRANGING AN APPOINTMENT FOR A PERSONAL INTERVIEW. UNIVERSAL CREPE & TISSUE MILLS, INC. MAIN OFFICE: 45 WEST 45th ST., NEW YORK CITY. A-25

SALESMAN WANTED—Experienced Corrugated Box Salesman wanted by one of the largest and best established manufacturers in the Central West. Good opening for the right man, but must be experienced and well recommended. Give all details in first letter. You do not have to be afraid to answer this ad for our own salesmen have been notified. Could also use a good **Corrugated Box Designer.** Address, Box 27-488, care Paper Trade Journal. S-1

SLITTER MAN—Experienced on Cameron machine. Do not waste reply, unless thorough. Address, Box 27-489, care Paper Trade Journal. A-25

SITUATIONS WANTED

SALESMAN—Position wanted on or before September 15, by married man thirty-three years of age. Have had four years experience as paper mill accountant and one year sales. Desire connection where ambition and results will be recognized. Best of references. Address, Box 27-469, care Paper Trade Journal. S-1

PULP AND PAPER MILL ENGINEER, with many years experience in design, construction and maintenance, desires position. References. Address, Box 27-470, care Paper Trade Journal. S-8

MECHANICAL ENGINEER—Graduated 1922 from University of Stockholm, Sweden, experienced in news print, sulphite and sulphate mills, seeks connection with pulp or paper mill in any capacity where technical training is of value and where the opportunity to advance is good. 6 months in sulphate mill in U. S. Capable draftsman. Address, Box 27-471, care Paper Trade Journal. A-25

WANTED—Situation as day foreman or boss machine tender. Familiar with both coarse and fine papers. Fourdrinier and Yankee machines. References. Address, Box 27-472, care Paper Trade Journal. S-8

FOREMAN-ADJUSTER paper bag machines; flat and square, self-opening and sack machines, also printing, wishes position. Long experience. Address, Box 27-473, care Paper Trade Journal. S-1

TOUR BOSS wishes position. Experienced on most all kinds of paper, also glassine and greaseproof. Address, Box 27-433, care Paper Trade Journal. A-25

SITUATIONS WANTED

AGGRESSIVE PAPER SALESMAN, of executive ability and wide experience in the manufacture and sale of high-grade Book Papers—coated, uncoated and specialties—wishes to locate with Mill manufacturing book papers as direct representative with opportunity for advancement. Ten years Mill and Jobbing experience and knows book papers intimately, and can introduce new grades and highly profitable specialties. Wide acquaintance with both merchant and converter trade. Would also consider position as sales manager at mill. Highest credentials. Those having a proposition that offers a real opportunity for a high grade man, please address, giving full particulars, Box 27-495, care Paper Trade Journal. S-8

BOSS MILLWRIGHT—17 years experience on maintenance and construction in paper plants. A good machinist and erector. Can layout work and get results. Now employed but wish a change. References. Address, Box 27-492, care Paper Trade Journal. S-8

SLITTER on Cameron, Columbia and Langston slitters, also Hudson-Sharp toilet paper machines. Eight years experience. Work anywhere. Thomas Trinker, 425 East 15th St., New York City. A-25

MACHINE TENDER—Board machine tender, age 30 years, married, sober. Well up on all grades of box boards and container. Can furnish reference. Available at once. Address, Box 27-491, care Paper Trade Journal. S-1

ASSISTANT SUPERINTENDENT—College graduate, chemist, nine years practical experience and research in rag fine writing papermaking and specialties, desires position with opportunity for advancement. Address, Box 27-320, care Paper Trade Journal. tf.

CHEMICAL ENGINEER, Scandinavian, 9 years experience in operation of sulphite mills in Canada and Scandinavia, desires position as superintendent or similar position in Canadian mill. Address, Box 27-457, care Paper Trade Journal. S-1

PAPER MILL SALES REPRESENTATIVE—Seeking representation for New York City and adjacent territory for mills making coated book, litho, supercalendered, machine finished, offset, high bulking book, sulphite bond, cover. Wide selling experience, knowledge of paper merchants specializing in the sale, and direct consumers of these papers, combined with an understanding of manufacturer's viewpoint and procedure. Address, Box 27-441, care Paper Trade Journal. A-25

PAPER MILL SUPERINTENDENT—Trained on M. F. and M. G. Kraft and Sulphite papers, over various grades. Best of references. Address, Box 27-393, care Paper Trade Journal. S-8

WANTED—Position as machine tender. Up on all kinds of box and test boards. Can give references. Address, Box 27-468, care Paper Trade Journal. A-25

BOOKKEEPER—Experienced voucher system. Capable making financial statement. Full charge, or act as assistant. Address, Box 27-453, care Paper Trade Journal. A-25

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MIDDLETOWN, OHIO

SHARTLE BROTHERS
DIVISION OF THE BLACK-CLAWSON COMPANY

SITUATIONS WANTED

SALES CONNECTION WANTED by young man, with manufacturer or distributor of product used by paper or pulp mills. Have had extensive sales experience and know fields thoroughly. Address, Box 27-494, care Paper Trade Journal. tf.

OPPORTUNITY—To secure fine paper mill superintendent. Technical man accustomed to manufacture of high grade loft and air dried bonds and ledgers to folding and other specifications. Good reference. For further information apply to Box 27-485, care Paper Trade Journal. A-25

SHIPPING CLERK—Experienced finishing room, and follow up orders. Address, Box 27-454, care Paper Trade Journal. A-25

BOSS FINISHER desires position in a progressive up-to-date mill. 15 years experience in very good mills on wrapping, book, bond, tissue and news. Single, duplex cutters, layboys, winders, ream cutters; shipping clerk, mill office work. References. Address, Box 27-447, care Paper Trade Journal. A-25

BEATERMAN-PAPERMAKER, experienced in all grades, from No. 1 ledgers, linens, onionskins, also fast books, envelope, lithograph, mimeograph, Kraft, tissues. Can finish stuff off the plate or Jordan to suit weights and test. Experienced with colors; steady and reliable Come immediately. Address, Box 27-484, care Paper Trade Journal. A-25

MILL CONNECTION WANTED—Capable experienced salesman desires mill connection. Years of experience in the sales of both coarse and fine paper. Willing to travel. Highest credentials as to ability and integrity. Address, Box 27-490, care Paper Trade Journal. tf.

SUPERINTENDENT OR MANAGER, now employed, wishes position. Long experience on fine grades book, colored specialties. Best of references. Address, Box 27-479, care Paper Trade Journal. S-1

MISCELLANEOUS

CLARK MANUFACTURING COMPANY, Holyoke. Mass. Telephone 1828. Builders of cylinder moulds, couch and felt rolls, dandy rolls. We cover dandies and cylinders tight, for fast running macnines. 3-5-27

SEND YOUR ODD LOT LIST of coarse and fine papers together with samples to Goldman Paper & Paper Stock Co., 414 So. Front Street, Philadelphia, Pa. tf.

WANTED—Mill ends and job lots in rolls or flats in any quantity, all grades. Also boards. Joseph Goldstein & Sons, 1302-9 N. Halsted Street, Chicago, Illinois. tf.

WANTED—To invest $5,000.00 in constructing and operating a pulp or paper mill. Experienced in mill construction. Successful manager and mill man. Address, Box 27-480, care Paper Trade Journal. A-25

WANTED—Side or odd lot rolls ten to ninety pound basis. The larger the quantity the better we like it. Address, Box 27-481, care Paper Trade Journal. tf.

ORGANIZATION having operating and sales staff wants to take over paper mill to operate with group other mills. Can arrange purchase money soon as earnings warrant. Address, Box 27-493, care Paper Trade Journal. S-1

WANTED

WANTED IMMEDIATELY—One used or new 100 to 300 pound tub beater without cylinder washers. HERRMANN MFG. COMPANY, Lancaster, Ohio. A-25

WANTED—72"-75" Hamblet Cutter with or without Layboy and with back stands for eight rolls. Address, Box 27-476, care Paper Trade Journal. A-25

WANTED

WANTED—2 W. & P. Pulpers, 2 Filter Presses and 1 Rogers Wet Machine. Address, Box 27-285, care Paper Trade Journal. tf.

WANTED—Second hand Slitter approximately eighty inches wide. Address, Box 27-482, care Paper Trade Journal. tf.

FOR SALE

FOR SALE—Second-hand 1200 lb. wood tub N. & W. beater. In good condition. The Noble & Wood Machine Co., Hoosick Falls, N. Y tf.

FOR SALE—6 Used Jones Imperial Jordans, with bronze or steel fillings. Will sell "as is" or factory rebuilt. THE NOBLE & WOOD MACHINE CO., Hoosick Falls, N. Y. tf.

FOR SALE—One second hand Noble & Wood Beater, 1800 lbs.; Two s.h. Jones, 1500 lbs.; Two s.h. Dillon, 1400 lbs.; Two s.h. Dilts, 1200 lbs. AS IS or will rebuild them into High Speed Beaters to travel 80 to 110 feet per minute. Leo Shlick Engineering Co., 314 Beacon Street, Boston, Mass. S-8

FOR SALE—Digester 28 feet high, 9 feet diameter. Never used to any extent. Price reasonable. Address, Box 27-496, care Paper Trade Journal. A-25

FOR SALE
BOARD MILL EQUIPMENT

3—800 lb. Downingtown Beaters.
2—70" Downingtown Wet Machines.
1—48" Stack Board Calenders.
1—36" Stack Board Calenders.
1—120 Ton Screw Press.
1—65" Ream Cutter.
250 H.P. and 150 H.P. Engines.

Address, Box 27-270, care Paper Trade Journal.

FOR SALE

2—Swenson Vacuum Evaporators, Triple Effect, 3,300 sq. ft.

4—Carlson Disc Evaporators.

3—Carlson Rotary Incinerators.

Excellent Condition. Immediate Shipment.

J. C. PICKENS
Nitro, W. Va. S-1

WANTED

Connection with Paper Manufacturer

producing an especially tenacious paper, white-blue duplex ribbed, 150-200 grammes per square metre, in rolls for flour bags, etc. Please address offers with samples for exportation to **K.b.U. 4231, care Rudolf Mosse, Advertising Agency, Bielefeld (Germany).** A-25

Classified Advertising Brings Results

FOR SALE

FOR SALE

1—72" Hamblet Single Cutter with 24 roll back stand.
1—84" Beloit heavy duty duplex.
1—84" Black-Clawson heavy duty duplex, with duplex slitter.
1—52" Moore & White Cutter with Moore & White Layboy and Backstands.
1—48" Moore & White Cutter with Moore & White Layboy and Backstands.
1—42" Moore & White Cutter with Moore & White Layboy and Backstands.
1—60" Hamblet Cutter with 10 roll Backstands.
1—110" Moore & White Cutter with Moore & White Layboy and Backstands.
1—82" Heavy duty Hamblet Single Cutter with 24 roll Backstands.
2—58" Moore & White Single Cutters.
4—54" Moore & White Single Cutters.
6—48" Moore & White Single Cutters.
1—57" Hamblet Duplex Cutter. Heavy Duty.

The Shartle Brothers Machine Co.,
Middletown, Ohio tf.

BAG MACHINE
For Sale

New Fuller-Saxton Single Purpose Bag Machine. Length of tube—32¼", with two color printer attached. Cost $4500.00. Make offer. Must make quick sale. Address, Box 27-475, care Paper Trade Journal. S-1

PAPER MACHINES
For Sale

In good condition. Immediate delivery.

One 2 cylinder machine. 2 presses; 10 dryers 42" x 84"; one calender; reel; single drum winder; Marshall drive.

One Fourdrinier machine. Wire 96" x 50'. 2 presses; 15 dryers 48" x 94"; one calender; reel; two drum winder; Marshall drive.

By: FRANK H. DAVIS COMPANY
175 Richdale Avenue Cambridge, Mass.

Address Replies

to advertisements appearing under Box Numbers in care of

PAPER TRADE JOURNAL
10 East 39th St.,
New York, N. Y.

WANTED

A Mill or a Man Qualified to Produce Coated Label and Box Board.

To such a mill we offer a sales volume that will utilize a large portion or the entire output of its coated stock.

To such a man we offer an opportunity to organize and direct a mill of his own. Naturally—he must have a thorough knowledge of paper making and mill management.

If you qualify for either of the above we welcome your inquiry. Please write fully of your ability to fulfill the requirements. It will be held in confidence—of course.

Address, Box 27-424, care Paper Trade Journal. J1-28

The Farnham Improved

VACUUM ROLLS

Increases Production—Prevents Crushing & "Railroading." Correspondence Invited—Write for Circular and Full Description.

Farnham Manufacturing Company
BUFFALO, NEW YORK

Many Times Some Little Classified Advertisement Placed in These Columns Brings Satisfactory Results

FOR SALE

1—72" Model 10 Cameron.

11—Dryers 48" x 110".

60" trim Black-Clawson Fourdrinier machine.

Several White cedar stuff chests, A-1 shape.

1—48"—3 cylinder machine.

1—70"—2 cylinder machine.

Several Chippers.

Four deck Beloit frames. These are modern and extra heavy.

One Ryther & Pringle Multiple Saw Slasher. Will cut 32'.

One Farrel Roll Grinder.

One No. 2 Lannoye Pulper.

One 61" Holyoke Super-Calender.

The Shartle Brothers Machine Company
Middletown, Ohio tf.

UNION TALC COMPANY

Finest Grades of Agalite

147 Nassau Street New York

FOR SALE

2—Iron tub Beaters, practically new. Rolls 70 x 66. Made by Emerson Mfg. Co.

1—Wood tub Beater, practically new. Roll 70 x 66. Made by Emerson Mfg. Co.

2—Dilts Beaters, iron tubs. Rolls 54 x 62. A-1 shape.

1—Heavy duty Beloit 114" Paster.

4—Jones Washers. Iron tubs. Rolls 67 x 60. Good shape.

1—Dayton Beater and Hoist Iron tub Beater. A-1. Rolls 64" diameter, 54" face.

1—Breaker Roll 64" diameter by 54" face.

1—Downingtown Iron tub Beater with Brownell Buehler perforated back fall. Rebuilt for immediate shipment. Roll 44" x 44".

The Shartle Brothers Machine Co.
Middletown, Ohio tf.

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For Good Used Machinery

ROTARY DRYERS AND KILNS
6—4' x 30' American Process.
2—6' x 60'.
1—6' x 100'.
1—8' x 125'.

PULPER MIXERS
1—W. & P. size 17-200 gals.
Also several smaller sizes.

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1—3' 6" x 12' Allis Chalmers.
1—4' x 16' Schmidt.
5—5' x 22' Allis Chalmers.
7—5' 6" x 22' Schmidt.
1—6' x 22' Gates.

SULPHUR BURNERS
1—3' x 8' Glens Falls.
4—4' x 16' Glens Falls.
4—4' x 20' Glens Falls.

EVAPORATORS
1—Stokes Triple Effect, 1,000 sq. ft.
1—Scott Triple Effect, 1,350 sq. ft.
1—Swenson Triple Effect, 1,750 sq. ft.
2—Swenson Triple Effect, 3,300 sq. ft.

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2—6' x 4' Oliver.
2—6' x 6' Oliver.
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1—8' x 8' Oliver, Acid Proof.

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WE BUY YOUR IDLE EQUIPMENT

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Barclay 0603

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1—450 sq. ft. new Yaryan Heater.
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1—84" Union Iron Wks. Chipper, 30—20¾" knives
1—83" Baker Mfg. Co. Chipper 4—16" Knives.
4—150 H. P. Dillon Boilers, 150 lb. pressure.
1—750 G. P. M. Fairbanks Morse Fire Pump.
Several Centrifugal Pumps, 2" up to 12".
3 phase, 60 cycle, 550 volt Motors, 10 to 100 H. P.
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Lobdell Car Wheel Co.
Norwood Engineering Co.
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Waldron Corporation, John
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Mathieson Alkali Works, Inc.
Solvay Process Co.

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General Electric Co.
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General Electric Co.
Jeffrey Mfg. Co.
Link-Belt Co.
Walmsley & Co., (Canada) Limited, Charles.

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Bird Machine Co. (Pulmax Drive Div.)
Link-Belt Co.

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Walmsley & Co. (Canada) Limited, Charles

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Paper Manufacturers' Supplies

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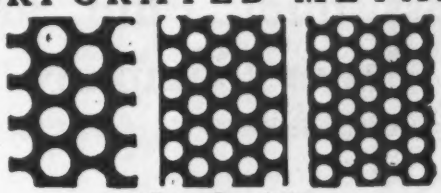

of Every Description
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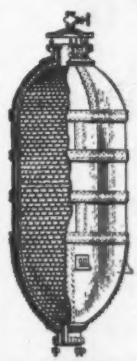
NEW YORK OFFICE: 114 Liberty St.



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"For wear and service"

Our Installations Fully Guaranteed.

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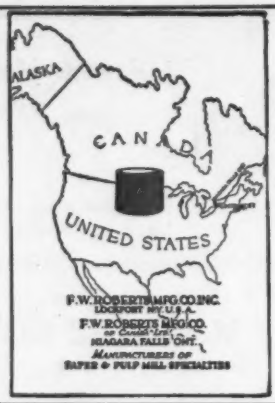

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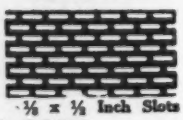

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PAPER TUBE MACHINERY
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Gibbs-Brower Co.
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PARCHMENT
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Cincinnati Rubber Mfg. Co.
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Locke Regulator Co.
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Borregaard Co., Inc., The

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Connersville Blower Co.
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ROLLS (Wood)
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U. S. Gypsum Co.

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SODA ASH
Diamond Alkali Works, Inc.
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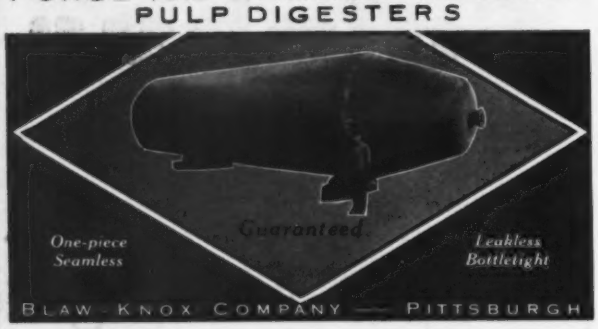

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INDEX TO ADVERTISERS

A

	Page
Acer & Co., Ltd.	—
Air Preheater Co.	4
Ajax Paper Mills, Inc.	—
Albany Felt Co.	—
Allen-Sherman-Hoff Co.	—
American Manganese Bronze Co.	—
American Tel. & Tel. Co.	20
American Tel. & Tel. Co.	26
American Voith Contact Co.	—
American Well Works	—
Andersen & Co., J.	39
Appleton Machine Co.	15
Appleton Wire Works	79
Appleton Woolen Mills	74
Armstrong Cork & Insulation Co.	—
Arnold, Hoffman & Co., inc.	79
Atterbury Bros.	—

B

Baxter & Co., B. M.	—
Badenhausen Corp.	—
Bahr Bros. Mfg. Co.	—
Beloit Iron Works	89
Bemis Associates	87
Berry, C. R.	74
Biggs Boiler Works	12
Bird Machine Co.	25
Black-Clawson Co.	13
Blaw-Knox Co.	84
Borregaard Co., The	88
Bowsher Co., N. P.	71
Bowsher, S. F. Co., Inc.	—
Bradley Mfg. Co., A. J.	74
Bridgeport Safety Emery Wheel Co.	—
Bristol Co.	79
Brown Hoisting Machinery Co.	—
Brown Co.	86
Bulkley, Dunton & Co.	83
Butterworth & Sons, Co. H. W.	—

C

Cameron Machine Co.	—
Carey, James L.	74
Castle & Overton, Inc.	—
Central Alloy Steel Corp.	Cover 2
Central Machine Works	—
Chandler & Price Co.	—
Chicago Belting Co.	—
Cincinnati Rubber Manufacturing Co.	—
Clark-Aiken Co.	84
Cleveland Worm & Gear	—
Clipper Belt Lacer Co.	—
Columbian Paper Co.	84
Columbia Rope Co.	—
Combustion Engineering Corp.	74
Connersville Blower Co.	44
Consolidated Products Co. Inc.	78
Cook's Sons, Adam, Inc.	—
Corn Prod. Refining Co.	—
Craig & Co., H. G.	69
Crescent Belt Fastener Co.	—
Cutler-Hammer Mfg. Co.	Back Cover

D

Davis Co., Frank H.	87
Dayton Beater & Hoist Co.	84
Diamond Alkali Co.	—
Dietz Machine Works	—
Dilts Machine Works, Inc.	31
Dominion Eng. Wks. Ltd.	—
Dominion Eng. Wks. Ltd.	—
Dorr Company	—
Dowd Knife Works, R. J.	—
Draper Bros. Co.	88
Dresden Annual Show	—
Drying Systems, Inc.	—
Dupont DeNemours & Co., E. I.	—

E

Eastwood Wire Mfg Co.	7
Economy Pumping Machinery Co.	—
Electro Bleaching Gas Co.	—
Electrical Testing Laboratories	79
Elixman Paper Core Co.	73
Emerson Mfg. Co.	71
English China Clays Sales Corp.	—
Erie City Iron Works	33
Erie Malleable Iron Co.	3
Estes & Inc., L. V.	79

F

Fairbanks, Morse & Co.	—
Farnham Mfg. Co.	78
Farrel Foundry & Machine Co.	44
Fawcus Machine Co.	81
Ferguson Co., H. K.	61
Ferguson, Hardy S.	80
Fifth Ave. Bldg. Co., The	—
Fitchburg Duck Mills	—
Fitchburg Screen Plate Co.	—
Flexible Steel Lacing Co.	—
Foxboro Co., Inc., The	—
Franklin Paper Co.	—
Federick Iron & Steel Co.	—
Fulton Engineering Co.	—

G

Gatti Paper Stock Corp.	79
General Chemical Co.	79
General Dyestuff Co.	—
General Electric Co.	—
Gibbs-Brower Co., Inc.	—
Goodrich Rubber Co., B. F.	—
Goodyear Tire & Rubber	—
Graham Brothers	—
Graton & Knight Co.	Front Cover
Green Bay Barker Machine & Tool Works	—
Green Bay Wire Works	—
Griffith-Hope Co.	—
Griley-Unkle Eng. Co.	35
Gulf-Electric Company	—

H

Hamblet Machine Co.	69
Hammermill Paper Co.	—
Hardy & Sons Co., W. A.	16
Hardy, George F.	80
Harrington & King Perforating Co.	81
Hauser-Stander Tank Co.	—
Hayton Pump & Blower Co.	79
Heally-Ruff Co.	—
Heller & Merz Co.	67
Hendrick Mfg. Co.	84
Hercules Powder Co.	17
Hicks, Inc., Daniel M.	—
Higman Co., John W.	—
Hockley, C. C.	74
Horsburgh & Scott Co.	79
Hudson - Sharp Machine Co.	87
Hunt Machine Co., Rodney	8
Huyck & Sons, F. C.	—

I

International Acceptance Bank, Inc.	63
International Paper Co.	61
International Pulp Co.	74
International Salt Co.	—
International Wire Works	79

J

Jeffery Mfg. Co.	—
Jenkins Bros.	86
Johaneson Wales & Sparre, Inc.	—
Jenssen Co., G. D.	71
Jolbert & Frenett	81

INDEX TO ADVERTISERS

K

	Page
Kalamazoo Vegetable Parchment Co.	14
Kalamazoo Tank & Silo	73
Kalbfleisch Corporation	—
Keller Co., E. J.	6?
Knox, H. D. & Co.	—
Knox Woolen Co.	83
Koegel's Sons, Inc., Chas.	—

L

Lacey Securities Co.	—
Langston Co., Samuel M.	18
Lawrence Machine Co.	—
Lefren, Karl, A.	74
Leipzig Trade Fair, Inc.	—
Lennig Co., Charles	16
Leshner Paper Stock Co.	—
Lindsay Wire Weav. Co.	69
Link-Belt Co.	—
Little, Inc., Arthur D.	80, 79
Lobdell Car Wheel Co.	—
Locke Regulator Co.	—
Lockhart, John P.	—
Lockport Felt Co., Inc.	14

M

McCaw, Jas. H.	—
McKenna & Phelps	—
Machinery Co. of Amer.	67
Manitowoc Eng. Corp.	67
Mason Regulator Co.	—
Mathieson Alkali Works, Inc.	—
Mendelson Brothers Paper Stock Co.	81
Michigan Pipe Co.	71
Miner-Edgar Co.	69
Missisquoi Pulp and Paper Co.	82
Missouri Pulp & Paper Co.	—
Moore & White Co.	12
Morrison, J. L. & Co.	—
Morse Chain Co.	—
Mundt & Sons, Charles	82
Murray Mfg. Co., D. J.	—

N

Nash Engineering Co.	74
National Aniline & Chemical Co., Inc.	—
National Graphic Arts Expositions, Inc.	—
Naylor Spiral Pipe Co.	—
Neumeyer & Dimond	—
New Departure Mfg. Co.	29
Noble & Wood Mach. Co.	—
Norma-Hoffman Bearing Corp.	6
North German Lloyd	—
Northwest Paper Co.	—
Norton Co.	—
Norwood Engineering Co.	73

O

Oakes Co., Roland T.	65
Oakite Products, Inc.	—
Ohio Cultivator Co.	—
Oliver Continuous Filter	—
Orbison & Orbison	—
Orr Felt & Blanket Co.	—

P

Palmer-Bee Company	—
Paper Converting Mach. Co.	65
Paper Machinery, Ltd.	4
Paper Makers Chem. Co.	—
Paper and Textile Mach. Co., The	—
Paper Mills Laboratories	—
Parish, A. L.	73
Parsons & Whittemore, Inc.	—
Perkins & Son, Inc., B. F.	5
Perkins-Goodwin Co.	—
Philadelphia Gear Co.	—
Philadelphia Quartz Co.	—
Pickles, W. F.	73
Potdevin Machine Co.	88
Price & Pierce, Ltd.	65
Pusey and Jones Co.	37

R

Rhoads & Sons, J. E.	—
Riordon Sales Corp.	—
Roberts Mfg. Co., F. W.	82
Robison Products Corp	—
Ross Engineering Corporation J. O.	74
Rotospray Mfg. Co.	79
Ruths Accumulator Co.	79
Ryther & Pringle Co.	—

S

Sabin Robbins Paper Co.	—
Salomon Bros. & Co.	79
Sewall, James W.	74
Shartle Bros. Mach. Co.	76, 77, 78
Schofield Co., Inc., Gilbert J.	—
Shepard Electric Crane & Hoist Co.	—
Shuler & Benninghofen	71
Simons, V. D.	—
S. K. F. Industries	41
Smith, Frederick L.	74
Smith and Winchester Manufacturing Co.	6
Solvay Process Co.	—
Standard Oil Co.	—
Standard Paper Co.	—
Stearns Lumber Co., A. T.	—
Stebbins Eng. & Mfg. Co.	74
Stevens, John A.	74
Stickles Steam Spec. Co.	63
St. Regis Paper Co.	71
Sutherland D. Manson, Jr.	74

T

Taylor, H. S.	80
Taylor Instrument Co.	—
Taylor Stiles & Co.	—
Technical Econ Corp.	78, 85
Terry Steam Turbine Co.	—
Texas Gulf Sulphur Co.	83
Textile Finishing Machinery Co.	65
Thwing Instrument Co.	19
Ticonderoga Mach. Wks.	—
Timken Roller Bearing Co.	—
Trimby Machine Works	88
Turner Halsey Co.	—

U

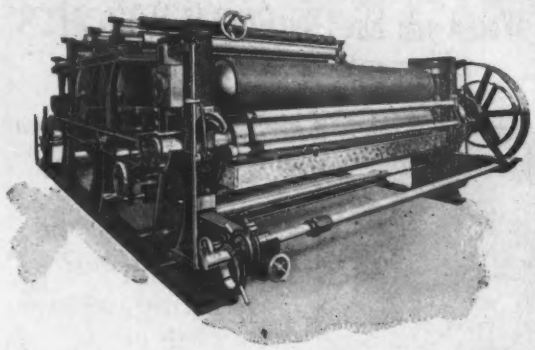
Union Talc. Co.	78
United Filters Corp.	79
U. S. Cast Iron Pipe Co.	—
U. S. Gypsum Co.	—
U. S. Testing Co.	—

V

Vacuum Oil Co.	10-11
Valley Iron Works Co.	27
Vanderbilt Co., R. T.	—

W

Waldron Corp., John	8
Walworth Co.	—
Walmsley Co., Chas.	—
Walsh Wiedner Boiler Co.	—
Warren Steam Pump Co.	—
Waterbury Felt Co.	82
West Virginia Pulp and Paper Co.	63
Westinghouse Electric & Manufacturing Co.	9
Whitaker Paper Company, The	—
Whitfield Paper Wks., Inc.	—
Williams & Co., C. K.	84



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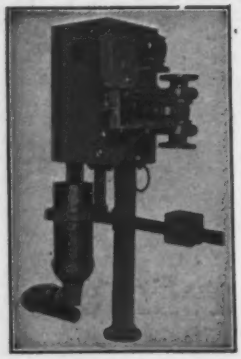

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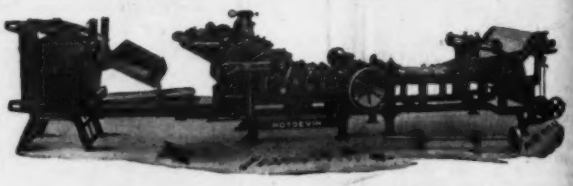

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